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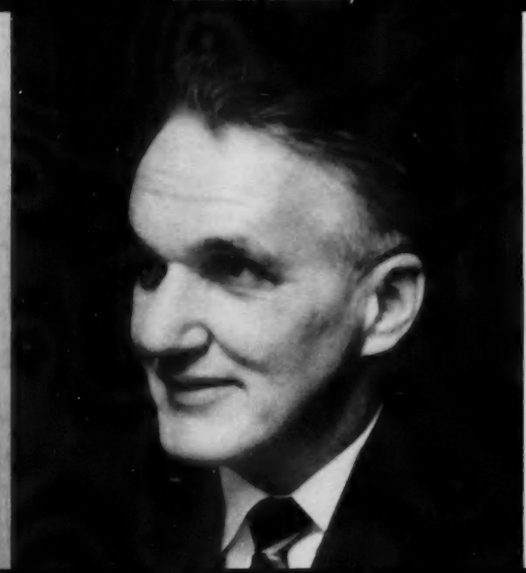

Elliot E. Wentworth
Vice President
Cincinnati Vulcan Co.

IN THIS ISSUE:

Defense Needs and Economic Growth

These five men present economic, government and large and small business viewpoints.
In addition, an exclusive panel of Harvard Business School faculty members appraises the businessman's role and responsibilities.

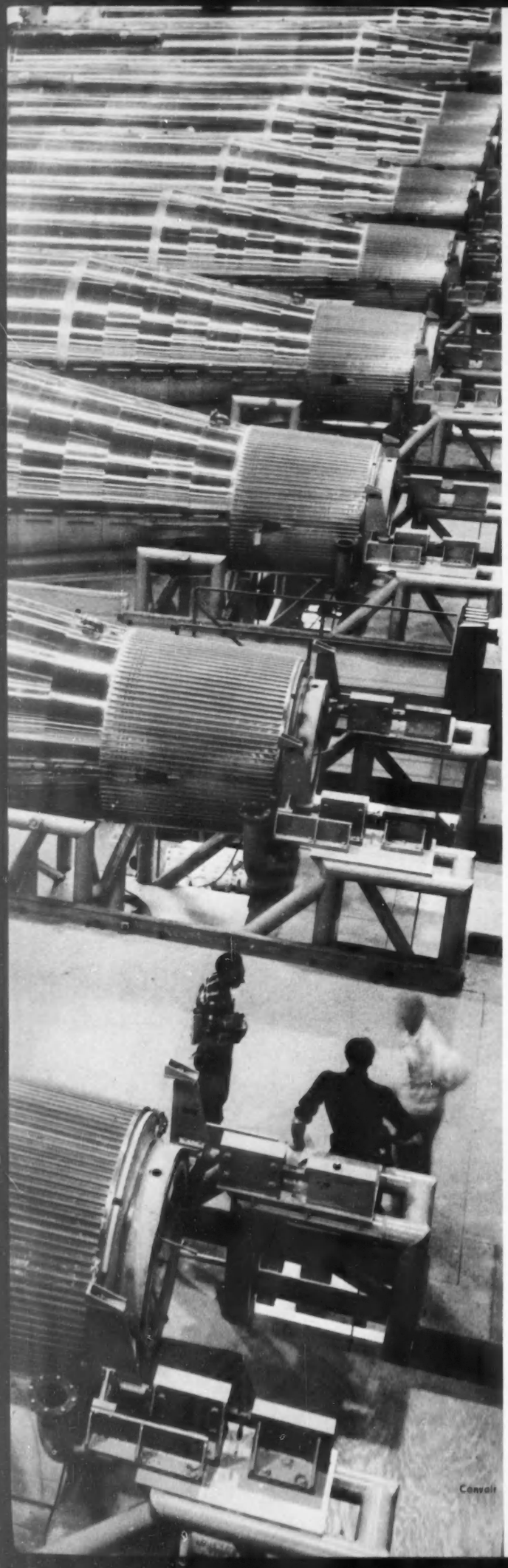

Table of Contents

Can We Accelerate American Economic Growth?

by Dr. Klaus E. Knorr, Associate Director, Center of International Studies, Princeton University 4

A leading authority on international economics discusses Free World vs. Soviet economic gains, and the implications to U.S. and Western security.

Sound Economy and U.S. Defense

by Neil H. McElroy, Former Secretary of Defense 11

Here is DOD basic thinking on providing adequate defense in the face of higher costs, faster weapons obsolescence.

Are Our Sights Set High Enough?

by Thomas V. Jones, President, Northrop Corporation 14

A challenge to industry and government management for more defense per dollar . . . with suggestions on the technological approach to achieve this goal.

One Way to Increase Procurement Efficiency—Quickly

by L. Berkley Davis, General Manager, Electronic Components Division, General Electric Co. 18

The benefits of close teamwork by big and small businesses are analyzed by a large business sub-contractor.

The Role of Small Business

by Elliot E. Wentworth, Vice President, Cincinnati Vulcan Co. . . 23

A small business spokesman assesses the opportunities, responsibilities, and contributions of small companies in the defense business.

Marshalling Business to Meet the Communist Threat

A Panel Discussion by Seven Faculty Members of the Harvard Business School 26

An exclusive *Defense Quarterly* roundtable which analyzes the businessman's role in (and impact on) national defense and economic policy.

THE GENERAL ELECTRIC DEFENSE QUARTERLY

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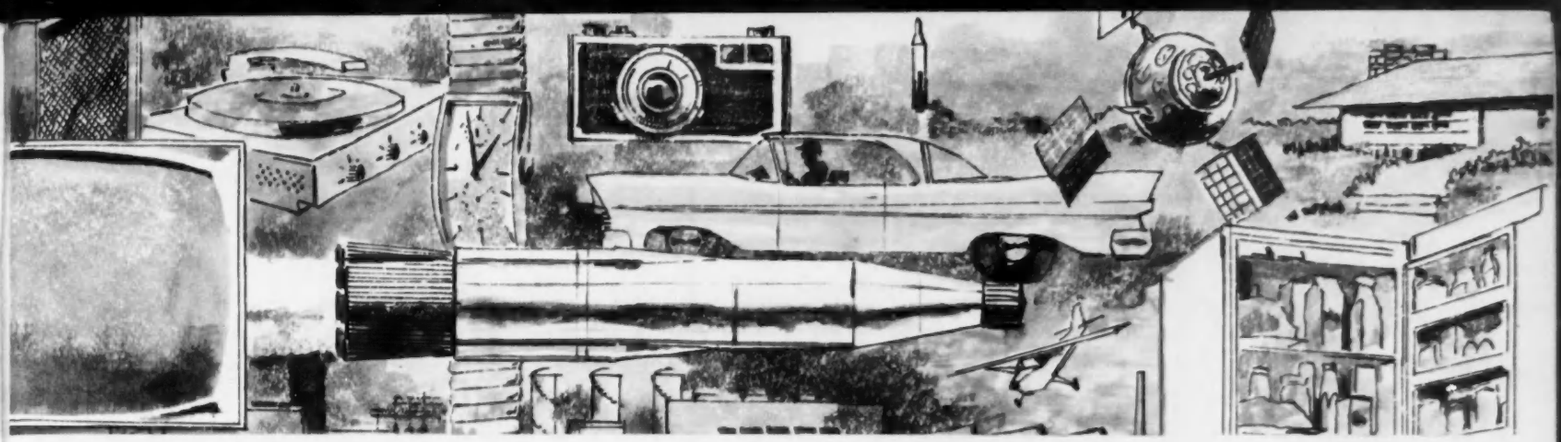
General Electric believes that great value will flow from the presentation in these pages of thoughtful, stimulating and sometimes controversial points of view. It should be emphasized, however, that the opinions of the authors are their own and do not necessarily represent the views of the General Electric Company.



Defense Needs and Economic Growth

It is time that we made greater business sense in analyzing defense needs and economic growth—twin issues at the very heart of the world conflict between Communism's state capitalism and our free enterprise system.

It is time that the private businessman made himself heard re his role in this conflict: like it or not, he finds himself in the eye of the hurricane. He stands for the very system which the Communists are committed to defeat.

It is time that we attempt to cut through the fog of words and conflicting opinions to define more businesslike approaches toward both sound defense and sound prosperity. In this search, several points stand out:

1. National leadership must, increasingly, *lead*. Under free enterprise, only the businessman can supply the technologies and products for both defense and peace; but his role is to help implement—not set—national policy.

2. But national leadership cannot *dominate*. No one wants this. But in practice, the tendency is "to become a little more like Russia," to compete with her on her terms—namely, through centralized control. In reviewing what the USSR has produced under state direction, we may overlook the even more astonishing progress being realized through free enterprise by other nations such as West Germany.

3. The U.S. is capable of multiplying its progress (and outstripping its Communist competitors) in *all* major areas deemed important. We *can* achieve this progress, provided the government-industry team is able to capitalize on its own unique strengths, with each partner contributing where it is best qualified.

At no time in history has our way of life been more under the gun to produce. How well we produce will help determine not just our own national well-being but the course of national and world events as well. The uncommitted nations are analyzing which system can produce best—ours or the Communists'.

What can we say about defense needs and economic growth? A great deal. The pages that follow present some of today's most respected viewpoints. Many opinions conflict. That is to be expected. While those responsible for this magazine may hold differing convictions from those expressed in these pages, we believe that great value can flow from the presentation of sometimes controversial points of view.

The need is to sift the facts and judgments, however divergent, and arrive at a more dynamic, businesslike plan for getting the most out of free enterprise. That result cannot be had by decree, but only by forging the healthiest possible government-industry relationship, which will stimulate our free economy into greater creativity and productivity.

The U.S. businessman can say and do much about the great issues of sound defense and economic growth, about America's economic flexibility to support a broad band of possibilities:

● On one hand, we recognize the responsibility to stay in the defense business as long as the nation needs new technologies and weapons for security and survival. We are meeting this need through decade-spanning planning financed through the savings of millions of private investors. Would knowledge of these programs inspire faith among our allies that America will make good its global commitments?

● Meanwhile, we know that every disarmament proposal, however remote, should be explored . . . that peace on a broad front is not to be feared but prayed for . . . that peace planning must be just as scientific as defense planning . . . that private business, through new developments and new products, can help assure smooth transition from defense to peace production. Would worldwide awareness of our real thoughts, plans and capabilities help to dispel misconceptions about us? Would increased understanding about America's economic system help negate Communist propaganda that our free society cannot survive without the prop of an arms race?

Are we exploiting opportunities to tell our total corporate story through acceptance of invitations to write and speak, through shareowner and house organ publications, through forwarding these statements to Congressmen and others who can amplify them? *Are businessmen speaking out on issues which are truly their business?* Everyone else seems to be saying what is needed for greater U.S. economic growth. Isn't it about time that we heard from the businessmen who must produce it?

Given strong national leadership and equally strong industrial support, we *can* satisfy our defense and economic needs without adopting state-control methods. This is the theme developed in the following pages. . . .

CAN WE ACCELERATE AMERICAN ECONOMIC G

by Dr. Klaus E. Knorr, Associate Director, Center of International Studies, Princeton University

Based on his experience in international economics, Mr. Knorr examines this subject of growing concern to many people in the U.S. and abroad:

- **How impressive have been Soviet economic gains?**
- **What threat do they pose to Free World security?**
- **How do U.S. and Western European growth rates compare?**
- **What are the merits—and shortcomings—of "growth plans" proposed to date?**
- **What are the essentials needed for any successful plan?**

Americans have not, until recently, worried about the long-run economic growth of their economy. Those who have been concerned about the performance of the American economy were chiefly preoccupied with the problems of instability, especially depression and inflation. This traditional lack of interest in the speed of economic growth has been perfectly understandable, since for many decades the real Gross National Product of the United States has grown substantially, though unsteadily, at an average rate of about 3 per cent a year, and the country's standard of living is, after all, the highest on record anywhere in the world.

Of late, however, sharpening concern about whether this excellent gain of the past will be good enough in the future has begun to dissipate the pride in achievement. The most serious thinking about the adequacy of American economic growth has been touched off by the sharply superior growth rates achieved in Soviet Russia and in the Sino-Soviet bloc as a whole, and by expectations of what a continuation of these rates might do to the security of the United States and the West.

Economic Growth Rates in Russia and the West

Economic growth is best measured as the annual increase in a country's Gross National Product (GNP) per year. And, since in all

Sovfoto

U.S.S.R.: Volga production at the Gorky Auto Works

GROWTH?

Dr. Klaus E. Knorr, a distinguished economist, is recognized as one of the country's leading authorities on international relations. His recent studies have included analyses of the many proposals for accelerating U.S. economic growth.

He has served as consultant for the RAND Corporation and numerous governmental agencies and commissions. These include: the Committee for Economic Development, the Mutual Security Administration and the National War College.

Dr. Knorr was a member of a UN international committee which in 1953 prepared a report on "Commodity Trade and Economic Development." In 1958, he was a delegate to UNESCO Paris conferences on peaceful uses of atomic energy, and in Prague on social science research. He has been with Princeton University's Center of International Studies since 1951.

cases the interest is in *real* growth, GNP is expressed in dollars of constant purchasing power. Comparisons of the GNP of various countries are difficult to make and, at best give only very approximate results. Nevertheless, if sufficient care is taken, rough comparisons are adequate for most purposes.

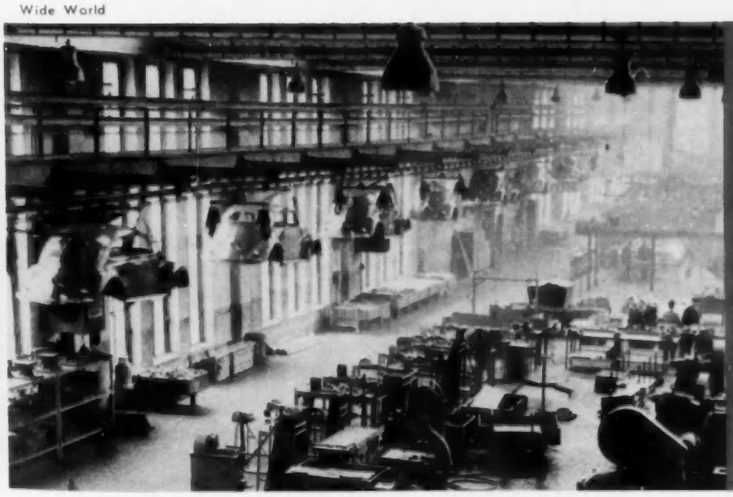
1. THE UNITED STATES

As defined above, economic growth in the United States has been subject to sharp short-term fluctuation, racing up during periods of boom and declining, or even falling below zero, during periods of depression. However, over longer periods growth has been fairly stable. It averaged 3½ per cent per annum from 1839 to 1959. While the annual increase averaged a little over 4 per cent from 1839 to 1879, and a little over 3½ per cent from 1879 to 1959, it averaged 3 per cent from 1919 to 1959. The last figure is likely to be right for the decade from 1950 to 1959, and it is this which we should regard as the current average rate of growth in the United States.

2. THE COMMUNIST BLOC

The Communist countries do not publish GNP statistics comparable to those available for the West. Estimates of the Russian product, and of its growth, are therefore especially hard to make and must be received with caution. But since the economic performance of the Soviet Union has come to assume an importance to us second only to the performance of the United States itself, a substantial body of experts in and outside the American government have developed techniques for constructing a rough picture of the Soviet economy and Soviet output. Though different experts have come to different conclusions regarding the 1950's, most serious estimates of Soviet economic growth fall within a range of from 6 to 8 per cent per year. In my judgment, the correct figure is likely to be in this range; and, for

Wide World



West Germany: Volkswagen Auto Plant, Wolsburg

"... in my judgment, it would be imprudent to expect a marked deceleration of Soviet economic growth."

purposes of convenience, we will estimate the recent Soviet rate of economic growth at an average of 7 per cent a year. During the 1950's, the GNP of the Communist countries in Eastern Europe seems also to have increased by an average of from 6 to 10 per cent a year. No comparable data exist for Communist China; but, for the last several years, the experts generally credit China with a very rapid rate of economic development.

3. WESTERN EUROPE

Contrary to prewar experience (1919–1938), the economic growth of Western Europe has in recent years markedly exceeded that of the United States. Over the four-year period from 1953 to 1956, the seventeen countries of the Organization for European Economic Cooperation saw their combined GNP expand by 20 per cent, while that of the United States increased by only 10 per cent. Moreover, the economic growth of Western Europe as a whole was held back by the relatively poor performance of Britain (only 12 per cent *over the entire period*). Increases in output over these four years for the fast-growing countries were 23 per cent for Italy, 24 per cent for France, 32 per cent for West Germany, and 33 per cent for Austria. These last two countries achieved average annual growth rates of between 5 and 6 per cent.

Growth Forecasts

Our capacity for economic prediction is far too frail to permit us to say with any degree of confidence whether or not the growth rates of the 1950's will even approximately persist during the 1960's or 1970's. Long-run variation in American rates has been relatively modest. But the recent performance of Western Europe represents a sharp break with that of the interwar period, and past Soviet economic growth has been far from steady.

1. THE SOVIET UNION

In the past, the main factors contributing to Soviet expansion have been:

(a) the large-scale transfer of underemployed manpower from the collective farms, where labor productivity was especially low, to employment in industry, where labor productivity was much higher;

(b) the "borrowing" of advanced technology from the West—with large technological gaps permitting a high productivity for new capital; and

(c) a high rate of saving and investment, with gross investment in the 1950's coming to about 25 per cent of the GNP, compared with around 16 per cent in the United States.

All three factors, it is claimed by many experts, are likely to contribute less to Soviet economic development in the future. However, in my judgment, it would be imprudent to expect a marked deceleration of Soviet economic growth. In agriculture and consumer goods industries, gaps between Russian and American techniques are still very broad indeed and promise the Soviet Union substantial output gains through investment in modern facilities. The firm dedication of the Soviet rulers to science, research, and new technology, and—concomitantly—a high investment in human resources (education, technical training), might make Russia as successful an innovator in other fields as she has already become in military production. It is not impossible that rising productivity even in agriculture will over time permit further reductions in the agricultural labor force—still about 45 per cent of the total labor force, compared with about 10 per cent in the United States—and a continued transfer of manpower to industry. Although there will be less opportunity to shift labor from low to high productivity sectors of the economy, growth rates may continue at a high plateau as labor pro-

ductivity rises in the wake of new investment and improved technology. Automation, for instance, may be more profitable in Russia, where producers need not worry about fluctuating market demand, than it has proved in the United States. It is also possible, if not probable, that the Soviet government, learning from experience and exploiting new planning techniques and facilities (e.g., computers), will improve the efficiency of its economic planning. Moreover, there is no present indication that the Soviet government faces political pressure due to the stiff rate of savings with which it has saddled the population. The fact is that, with a rapidly increasing GNP, even an unchanged proportion allocated to private consumption will add appreciably, year after year, to the standard of living.

Barring the intervention of major war or political instability in the Soviet Union, it is my judgment that the GNP may well continue to grow for another decade or so at about 7 per cent a year; and even if the rate should gradually decline—say, to an average of 6 per cent—this would still be about double the recent rate in the United States.

2. WESTERN EUROPE

Whether Western Europe will be able to maintain its high rate of economic growth is inevitably more doubtful. For one thing, as in the United States, the rate of savings and investment in Western Europe depends largely upon the voluntary choice of private business and individuals. For another, the economies of the European countries are subject to the instability of boom and recession—like the United States, and unlike the Soviet Union. Nor is it easy to see how Western Europe

". . . the American public is capable of large adaptations to the n

can return to the high level of output growth experienced in the mid-1950's. Productive capacity and labor supply are ample for doing so: the crucial question relates to demand. Even on the demand side there is some underlying strength, since the area has begun to enjoy a mass market in durable consumer goods, as the United States did in the 1920's. However, in the absence of specific government measures to raise personal disposable income, a sufficiently large volume of demand can come about only if consumers cut their rate of saving, and of this there is at present no indication.

It is often suggested that the European Economic Community (or Common Market), creating as it will a vast free market of over 160 million people in France, Germany, Italy, and the Benelux countries, will cause a huge investment boom. But the development of this market, to come about over a period of 16 years, has only begun; and it is doubtful that its gradual consummation will cause a big forward-leap in total output and demand. The chances are that Western Europe as a whole will increase total output by an average of about 4 per cent a year during the 1960's. It would be something of an economic miracle if the entire area were to sustain a higher rate for any length of time.

3. THE UNITED STATES

Complete American recovery from the recent recession faces essentially the same problems as those encountered at present in Western Europe. Over the longer run, it would seem unreasonable to expect much more than a continuation of the 3 per cent rate of economic growth unless there is some major change in the economy.

According to one forecast, published in FORTUNE magazine (March, 1959), this country is about to ascend to a higher level of economic growth, bringing about an annual growth rate of 4.25 per cent of GNP for the 1960's, as the labor force grows because of the high birth rates since the war, and productivity increases because of the "explosive" growth of expenditures on research and development.

However, it is my judgment that government and private consumers are not likely to increase their expenditures sufficiently to sustain a growth rate of 4.25 per cent per annum, though that it will do so is conceivable. It is equally conceivable that the established 3 per cent rate will continue; and this, in view of the additions to the labor force and improving labor productivity, would mean a fairly chronic, though not disastrous, degree of unemployment. It is more likely, in my opinion, that the American rate of economic growth will rise by a fraction of 1 per cent—that is, to an average of between 3 and 3.5 per cent a year. Any rise above this *average* would require a drastic change in the conditions under which the American economy operates.

Implications for United States Security

Supposing that the output of the Communist countries were to expand for another decade or two at a rate of 7 per cent, while the American rate remained at about 3 per cent and the West European at a somewhat higher level, how important would this be to the security of the United States and the West? Would it render a further extension of Communist power more probable, if not certain?

There can be no unqualified reply to this question, for political strength and expansion rest on noneconomic as well as economic conditions. If the 1960's and 1970's saw a further extension of Communist rule and influence, such achievement might result chiefly from a superior design and implementation of Communist foreign policy. However, economic growth at unequal rates is likely to impinge on the outcome of the Cold War in several ways. First, in a world which has grown very sensitive to economic development, and, curiously enough, more sensitive to rates of economic growth than to achieved levels of growth, superior Communist growth rates will nurture in underdeveloped countries the image of the Soviet system as healthier and more dynamic than the older economic systems of the West. Second, the expanding markets in the Communist countries are likely to exert an attraction. Third, and probably most important, superior rates of economic growth would enable the Communist bloc to put increasing pressure on the Western countries by stepping up its resource allocations for military and foreign policy purposes, especially domestic armed forces, loans and gifts, arms shipments, the finance of subversion, and so forth.

The First Strike Advantage

The external pressure which a country is capable of generating depends both on the amount of resources allocated to foreign policy,

needs of national security."

especially to defense, and on the efficiency with which such resources are actually employed. In this respect, comparisons between the United States and the Soviet Union are most difficult to undertake. There are, however, certain asymmetries in the situation which favor Communist efficiency. For example, the very fact that—on the level of thermonuclear war—the Soviet Union is generally conceded the immense advantage of the first strike (largely denied to the United States because of political and moral constraints) permits the Communists to make their military preparations more selectively and cheaply.

Yet, with any given economic allocation to foreign policy purposes (expressed as a percentage of the GNP), and with any given efficiency with which the resources so allocated are managed, the growth of the GNP represents a basic factor in the generation of external pressure and counter-pressure.

Assuming—as was roughly the case—that, in 1958, the Soviet GNP was about 40 per cent of that of the United States; that the USSR is allocating roughly 20 per cent to military and foreign policy purposes and the United States 10 per cent, and supposing that these proportions remain unchanged for two decades; and, finally, that during these 20 years the GNP of the two countries grows at an annual average rate of 7 and 3 per cent, respectively. We then get the following hypothetical picture:

STRAIGHT LINE PROJECTION U.S. VS. SOVIET GNP

1958	United States	Soviet Russia
Gross National Product	$440 billion	$176 billion
Nat. Security Expenditure	$44 billion	$35 billion
1978	**United States**	**Soviet Russia**
Gross National Product	$796 billion	$686 billion
Nat. Security Expenditure	$80 billion	$137 billion

The startling result is that at the end of 20 years, under the assumptions made, Soviet Russia would be greatly outspending the United States on the national security account.

These figures do not, of course, represent predictions. They are mere projections of current data or assumptions. These results need not happen. But they may happen. And, if they do happen, the security of the United States, and of the West, would be very precarious indeed. The recent concern over the relatively low rate of output growth in the United States has been induced precisely because this is a serious contingency.

American Public Support

But, supposing that this country were able—in one way or another—to boost its long-run rate of economic expansion, would this permit us to prevail over Communist pressure? The sober answer is: not necessarily. We might fail for essentially noneconomic reasons. Or we might put more resources behind our military and foreign policy programs, but use these resources ineptly. We might, but we surely need not.

There is the further question, however, of whether the American people would be willing to spare more resources for defense and foreign policy even though our GNP rose faster than it recently has. In his best-selling book, *The Affluent Society*, Professor Galbraith of Harvard takes a negative view of this matter.

Yet it is a fact that, prior to World War II, United States expenditures for defense and foreign policy purposes amounted to roughly 1 per cent of the GNP. Since the Korean War, they have averaged about 10 per cent of the GNP. Surely this tenfold increase means that the American public is capable of large adaptations to the needs of national security. Further, even if the proportion of the GNP allotted to national security remains unchanged, the faster the GNP grows, the more *absolute* volume of resources allocated to military and foreign policy purposes expands. And in the matter of international conflict, it is the absolute amount which counts.

Proposals for Accelerating U.S. Growth

Is the United States able to accelerate its rate of economic growth? Clearly, this is a crucial question. It is also an exceedingly hard one to answer, since this nation has never before *deliberately* tried to raise its long-run rate of economic growth. Past rates have developed *spontaneously*. Moreover, we cannot learn the answer unless we try; and we will not try, or even consider trying, unless we know how to do the job and what consequences will ensue from any particular course of action.

Of late, several proposals have been made which urge that the rate of American economic growth be speeded up substantially. Their authors soon came to be referred to as the

"We cannot afford to shrug off the demand for faster expanding resources..."

"five-per-centers." In all of these proposals, the demands of national security figure as the foremost, or at least as a major, incentive. The most interesting of them can be briefly summarized as follows:

Rockefeller Brothers Fund—A rate of 5 per cent is desirable and attainable principally by changes in government policy, such as adoption of a monetary and fiscal policy to stabilize the economy and provide a needed flow of credit, revision of the tax system to facilitate capital accumulation, encouragement of small business, and increased expenditures on schools, highways, etc.

Sumner H. Slichter—"Maximum growth of the economy" can be achieved by the maintenance of full employment, gradual elimination of import tariffs and quotas, development of science and technology, and new methods of management, especially the introduction of an employee incentive system which is the only way to increase employee productivity and bring creeping inflation under control.

Leon H. Keyserling—A growth rate of 5 per cent consistent with "economic justice" can be achieved principally through the Federal budget and government planning, by broadening and implementing the President's Economic Report (which should set specific targets for production, employment, investment, price-wage-profit policies, etc.).

AFL-CIO—Following the Keyserling proposal, a 5 per cent growth rate will result from a stimulation of consumer spending raised by government spending and higher wages, with inflation kept in bounds by the greater productivity that would accompany higher growth rates.

The very multiplicity and vagueness of the recommendations in these proposals rob them of much of their persuasion. It may seem unfair, in view of our scant knowledge of the forces that promote growth, to draw attention to instances of vagueness—demands for "firm and effective" action, anti-recession measures which are "properly designed," and "equitable" tax structures. However, if one wanted to translate these proposals into a program for action, how would one go about it? Again, though it may be politically wise to substitute a number of little steps for one big step forward, it is not at all clear that the adoption of this long list of proposals would be easy politically; indeed, most of them could be expected to run into considerable opposition.

May Not Be the Answer

The Keyserling, AFL-CIO and Rockefeller Report proposals also seem to me to place excessive demands on the federal government. Beyond doubt, accelerated economic growth requires important and active participation by public authorities: public investment, monetary and fiscal policy, anti-trust and foreign-trade policy, all have a major and cumulative effect on the course of economic expansion. But history makes it abundantly clear that our government's capacity for wise and flexible decision-making is definitely limited, if only because of the constant push and pull of political pressures.

A further shortcoming of the AFL-CIO and Keyserling proposals is the excessive emphasis placed on raising the demand for goods and services. It is, of course, true that an attempt to enlarge productive capacity would engender sustained economic growth only if effective demand rose proportionately. However, it is also true that, once full employment has been reached, a mere increase in over-all spending will not necessarily bring about a proportionate expansion of the nation's capacity to produce, or will do so only after such a time lag that strong inflationary pressures will be generated; and, by impeding the forces making for increased productivity, inflation will act as a brake on real economic growth.

Nevertheless, these proposals have merit because they pose a major problem for us to consider. One conclusion is inescapable. We cannot afford to shrug off the demand for faster expanding resources made by the national security position of the United States. But we cannot act on this demand before we obtain a great deal more knowledge, than is available now, about alternative methods for accelerating our average rate of real economic growth, their probable effectiveness, singly or in concert, and in such their side effects which would conflict with our other values.

The first step, and one that is not costly, is research sharply focused on the acceleration of economic growth in an industrial rich and basically free enterprise society. And four desiderata should be built into any growth model which we want to study; a minimum of coercion, of economic decision-making by government, of inflation and of deflation. These are the constraints which make the problem so hard to solve. But the absence of these conditions is central to the way of life which we want to secure in an unstable and, in part, hostile world.

The appointment of Neil H. McElroy in 1957 as U.S. Secretary of Defense indicated growing government awareness that broad business leadership experience can contribute much to a strong national security and a healthy economy. As president of Procter and Gamble Company, devoted almost exclusively to consumer products, he brought 32 years of business experience to the office. Certainly, this dual management background puts Mr. McElroy in an excellent position to see both aspects of "Defense Needs and Economic Growth," as discussed in this issue of the *Defense Quarterly*.

A Harvard graduate in economics, Mr. McElroy joined Procter and Gamble in 1925 as a member of the advertising department, progressing through a series of advertising and management positions to the presidency of the company in 1948. He served in that capacity until his 1957 appointment as Secretary of Defense. Following resignation from that post last December, Mr. McElroy was elected Chairman of the Board of Procter and Gamble, and is now back at the Company's Cincinnati, Ohio headquarters.

Sound Economy and U.S. Defense

by Neil H. McElroy, Former Secretary of Defense

As weapons costs continue to increase, so does the burden of procurement responsibility on the Defense Department. Neil H. McElroy, just resigned as U.S. Secretary of Defense, gives inside details of current DOD approaches to the problem.

Of the total national expenditure budgeted for the Fiscal Year 1960, some 52 per cent is chargeable directly to the Department of Defense. There is evidence that the Communist leaders of the Soviet Union may be changing their tactics in such a way that peace—defined as the absence of major military conflict—is probable. This evidence is by no means conclusive because, so far, it consists only of statements of intent as distinguished from executed action.

"... if our defense dollars are not spent wisely ... the economy of the country can indeed be seriously threatened."

We hope, of course, that ways can be found for solving international disagreements and conflicting aims by some means other than war; certainly this nation will continue to work prayerfully toward that objective. But until we are certain that disarmament can be achieved with adequate safeguards, including a reliable system of inspection and control, we must not let our defense down.

Pressure for Higher Spending

In fact, sizeable pressures exist to push Defense expenditures still higher. Many of the weapons of the past have been replaced by systems which not only are vastly superior in performance, but are also much greater in cost. A single bomber, the modern B-58, costs more than $20 million, compared with $4 million for the old B-36—the best bomber of its period. World War II type submarines cost $4.7 million, compared with about $50 million for nuclear powered submarines of the NAUTILUS class and $100 million for POLARIS submarines. World War II ESSEX class carriers cost about $55 million; the first nuclear-powered carrier is estimated to cost $435 million.

The impact on expenditures looms even larger when one considers the advanced weapon systems of the future. A single ATLAS base, properly equipped and ready to function, will cost over $150 million, excluding the extremely high cost of development; it is estimated that a complete NIKE-ZEUS system, *if it can be developed* as an effective defense against incoming ballistic missiles, would cost well in excess of $10 billion.

The responsibility these growing costs place on the management of the Department of Defense is heavy and obvious. If these great expenses are added to existing programs, if our defense dollars are not spent wisely and efficiently and unnecessary expenditures eliminated to the maximum degree possible, the economy of the country can indeed be seriously threatened.

The Department of Defense is responding to this necessity in several ways.

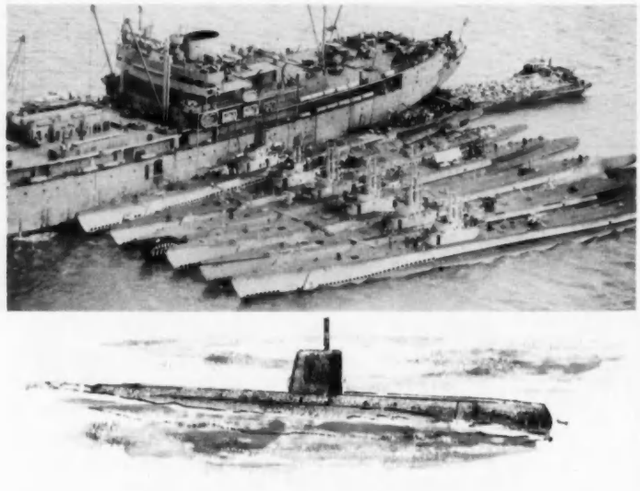
Early Decisions Important

One of the important steps toward a solution lies in the making of decisions regarding future weapon systems at a very early stage in their development. The time to decide between two systems is prior to the point where they

Wide World

Today's weapons are vastly superior but much more costly: $20 million plus, for the modern B-58 vs. $4 million for the old B-36.

Wide World



World War II subs cost $4.7 million, compared with about $50 million for nuclear subs such as the NAUTILUS, and $100 million for POLARIS.

are put into production, not when large sums have already been spent, large numbers of people have been drawn into the program, contractor facilities been committed, etc. Not only does the decision become a great deal more difficult when interests have become entrenched, but large sums have then been spent which cannot be recovered when the project is terminated.

It is not always possible to avoid moving well along with a program and then cancelling it at a fairly advanced stage in its development. Technological advances come rapidly and sometimes overtake a project that looked highly promising a year or so earlier. Also, in seeking to solve an extremely difficult weapons problem at maximum speed, it may be prudent to attempt two different approaches, knowing that one will probably be curtailed if both are successful.

Initial Responsibility Centralized

The creation of the position of Director of Defense Research and Engineering and the appointment of Herbert F. York to that post has centered in one man the initial responsibility to determine at a very early stage which projects should be pursued and at what rate of spending. This is not an easy assignment; his job is one of selecting the best among many good programs, not simply distinguishing the good from the bad. The actual savings thus effected may never be clearly identifiable, but without this careful sorting out of research projects our future expenditures would soar needlessly and dangerously.

Another important area of savings arises from the application of this same selective scrutiny to all components of our military program. In developing our defense budget we follow two general guides:

1. Where a program is considered to be unquestionably essential, the rate of development should be maintained, and even advanced where warranted by progress in technical development.

2. Where a program, in view of current technical information, seems to be of marginal importance or has been overtaken by events, the level of effort should be reduced or the project eliminated entirely.

Emphasis on Key Programs

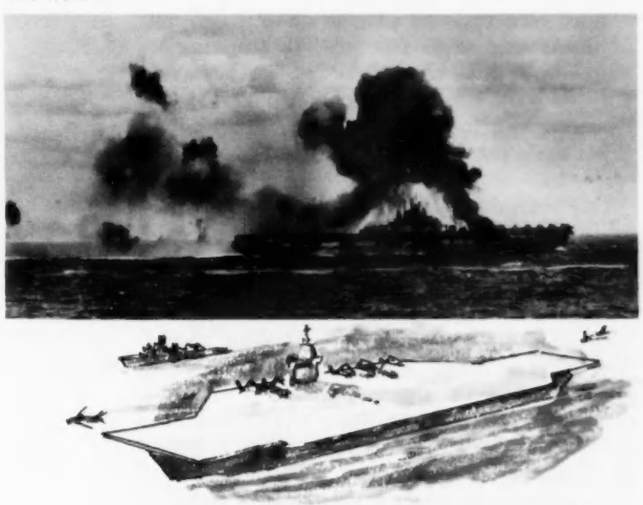
As a result, in the Fiscal 1960 budget increased emphasis was placed, for example, on certain key ballistic missile programs. At the same time, the REGULUS II, the REDSTONE, the RASCAL, and a few other missiles, many of them excellent in themselves but superseded by more advanced concepts, were discontinued or phased out of production. More recently the so-called "chemical fuel" program has been cancelled because it did not develop as well as had been expected and because the advantages to be gained from it were proving to be marginal. All programs are continuously being scrutinized and further difficult decisions will unquestionably have to be made.

It is not easy to chop off a program that is going along well. Many have promise, all have strong advocates. We do not view lightly the fact that jobs are affected and that the impact can frequently be felt by an entire community. However, if we are to meet the heavy responsibility of maintaining the necessary defenses without unduly burdening the economy of the United States, these difficult actions must be taken.

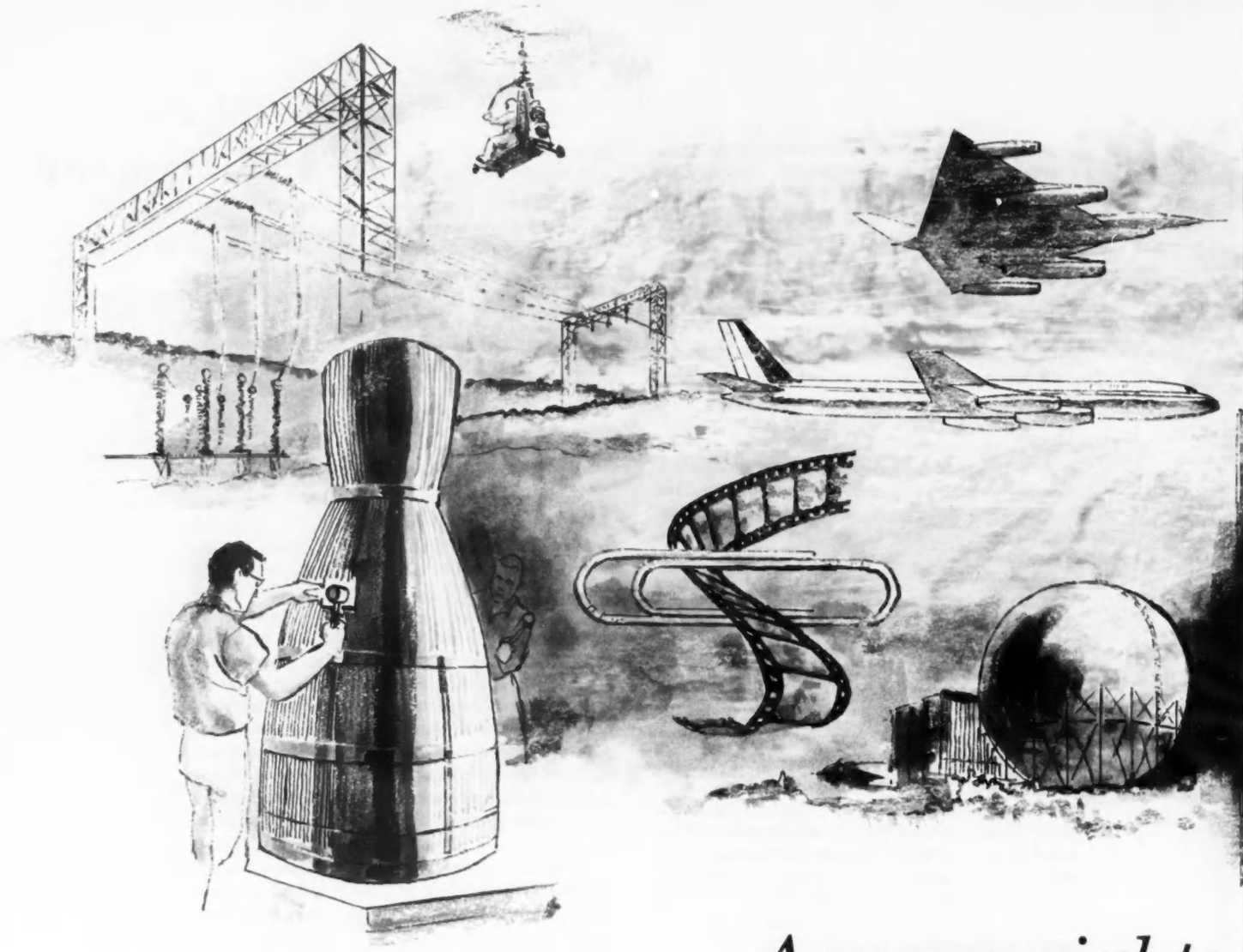
The resources of this nation, both human and material, are very great. They are adequate to meet any valid demands, military and nonmilitary, likely to be placed against them. But if we do not voluntarily exercise judgment and restraint, if we do not expend our time, energy, and money wisely and efficiently, we may have to compromise some of our freedoms in order to properly marshal these resources for the international competition that faces us.

The people of this nation have always responded willingly and effectively to the justifiable demands made on us. I am confident we will continue to do so. With our ability and willingness to do what is required, and with the strength that comes of free people working resolutely together, there can be no doubt regarding our strength in the future.

Wide World



World War II ESSEX class carriers cost about $55 million; the first nuclear-powered carrier is estimated to cost $435 million.



Are our sights s

by Thomas V. Jones, President, Northrop Corporation

"No," says one of America's leading aviation industrialist-economists:

- **The defense budget, regardless of level, will be challenged by rising costs.**
- **Production efficiency and cost control are not the whole answer.**
- **The answer must lie in carrying technologies beyond present horizons—to satisfy multiple demands.**

Here is how Mr. Jones says we can make maximum use of our resources . . .

We have recently experienced the annual crisis over the defense budget again. Year after year, we find we cannot reduce our huge defense needs any more than we can roll back their mounting costs. Since advancing technology has brought most of this about, perhaps more effective use of it could develop a more lasting solution.

Each new Russian success spreads a ripple of uneasiness as to our relative standing in weapons, space and technology. Understandably we want successes of our own to reassure ourselves and the world that we have what it takes to do the job.

Our alarm is compounded by an intuitive awareness of the magnitude of the challenge. Military expenditures, which once could be regarded as the nonrecurring costs of wartime emergencies, have in our day become the largest single element in the continuing yearly cost of government. On this basis, one view questions whether we can afford an annual defense budget of more than $40 billion. Another insists that we cannot allow a dollar constraint to determine the level of defense; that our primary concern should be to achieve whatever posture is necessary to deter general war and at the same time cope with a wide

ts set high enough?

Thomas V. Jones, President of Northrop Corporation, is one of industry's youngest top executives. For most of his 18 years in the aircraft industry, he has had repeated occasion to study broad trends in American defense. He has given particular attention to the developing conflict between the budget and the growing cost of weapons. Mr. Jones currently is a consultant to the Air Force's Scientific Advisory Board.

A 1942 Stanford graduate, Mr. Jones joined Douglas Aircraft Company as a design engineer. In 1947 he was named technical advisor to the Brazilian Air Ministry, and became a faculty member of the Brazilian Institute of Technology. He joined RAND Corporation in 1951, where he became increasingly interested in the interaction of technology and economics.

Mr. Jones joined Northrop in 1953 as Assistant to the Chief Engineer. Just last year, at the age of 39, he was named to succeed the late Whitley C. Collins as Corporation president.

"Technology, instead of merely providing a

for a given concept, n

spectrum of possible limited actions. In defense we are already forced to make difficult choices, canceling desired systems in order to have others regarded as more essential, neglecting some missions in order to provide better coverage of others. We have barely crossed the threshold of outer space, and already we must choose between interesting alternatives. And we may as well recognize right now that space may not be the only new avenue that science will open up. There will undoubtedly be others, equally challenging, and it may well be that our leadership will depend on how many science-created opportunities we can take advantage of.

Technical Advances Increase Costs

An increase in the defense budget at this time would ease the current stringency but it would not come to grips with the fundamental fact that advancing technology will continue to increase the cost of maintaining our position relative to Russian strength. As long as it does continue to do so, the defense budget, no matter what its level, will be challenged by rising costs.

In this context, it is well to reassess where we stand and to examine whether our sights are high enough.

As a nation and as the leader of the free world, our primary goal is the creation of resources, both physical and human—an expanding economy which provides more goods and services for ourselves and others; a dynamic society which strengthens freedom, health, education, science, the arts, and the spread of all these throughout the world.

These aims demand that we make increasingly better use of our resources. Nowhere is this more true than in the defense area. In World War II, the cost of weapons was such that the military planner was able to pursue most of the possibilities that technology could provide, including even an advance as great as the atomic bomb. Today's advancing technology offers a vastly increased number of weapon systems, each costing such an amount that the interesting possibilities for our principal missions alone could consume more than the defense budget allows. To other so-called secondary missions, important as they may be, we cannot do justice at all.

In this context the managers of our defense effort have no choice but to pursue realistically those programs and missions which are feasible under present cost constraints. They have the very difficult responsibility for allocating resources and for deciding which programs should be supported and which abandoned. This they have to do in terms of the best result for the total effort.

Responsibility of Industry

The management of defense industry must do its part to make the defense dollar go further. Those in government and industry who direct our technological effort and our research and development must realize that in the present environment no system is separable. Every time we commit effort and resources to one program, we must assume the added responsibility for the other program we may have to do without. We lead ourselves down a blind alley when our technology produces a system the size of whose production and operating costs must inevitably lead either to its own cancellation, the cancellation of some alternative program deemed equally essential, or to short-changing a number of essential programs.

Through operating efficiencies and through improved design, costs must be lowered all along the line. This must include research and development, production, and maintenance and operation. Only by focusing cost reduction on all three areas can we come closer to achieving our defense goals.

But the effort must not stop there. If it did, we could well be fighting a losing battle. Essential as they are, neither production efficiency nor the most rigorous control of other costs can alone provide a level of reduction sufficient to match the expanding appetite of new technologies.

There must be another factor fundamental to the solution of the problem. The answer must lie in carrying the effort beyond present horizons. We must begin now to understand how advancing technology can serve in the attack on this basic problem.

Defense industry over the years has concentrated its technical advances on achieving weapons of higher and higher performance. This was acceptable as long as the unit cost was low enough for us to buy enough units to accomplish the force mission, and as long as the cost of accomplishing the mission was not so great as to displace forces necessary to perform other essential missions. But the drive for higher speeds, higher altitudes, greater range, greater accuracy, and the like, has in turn produced greater and greater complexity. And added complexity has brought with it higher initial development and procurement costs, higher operating costs, reduced reliability and

a solution

must itself give birth to the concept."

operability, and increased maintenance costs. The result today is that, in many cases, the unit cost of weapons has become so high as to make force goals feasible only at the cost of displacing other needed mission forces.

Objective Must Change

Technology's traditional objective—maximum possible performance—must be converted to a more sophisticated goal, namely, performance adequate for the accomplishment of a mission objective at the lowest possible cost.

It should be emphasized that technology must provide the high performance needed to accomplish a particular mission. *The higher challenge to technology is to enlarge its concept in a way that makes its objective not the weapon but the mission. The mission problem must be considered in the context of the total defense posture.* Instead of addressing itself *solely* to increased weapon performance it must begin to think in terms of providing (1) a force effectiveness which (2) will perform a given mission at (3) a cost which does not preclude the performance of other essential missions. This approach requires that technology develop hand in hand with concept, and that both be measured not only in terms of physical effects but also in terms of their demand on resources. Its success will depend on the development of fundamental solutions to mission problems.

Technology, instead of merely providing a solution for a given concept, must itself give birth to the concept. We must cultivate a new combination of conceptual thinking, technical research and the most effective use of resources. It will take the free interaction of these three elements to create the new kinds of solutions we need.

This type of interaction is already at work and producing interesting results. Advances in solid state physics have brought fundamental solutions in the semiconductor and transistor field which have yielded better and lower cost electronic solutions. Manufacturers of jet engines have begun to make engines which, in comparison with the amount of thrust produced, are very light, small, and simple and which are the key to high performance at lower cost. There have been increases in the specific impulse of liquid and solid propellants which offer the promise of lower-cost missile systems. In the atomic energy field there are advances in reactor design which will bring new benefits in military applications and more abundant power for industrial purposes.

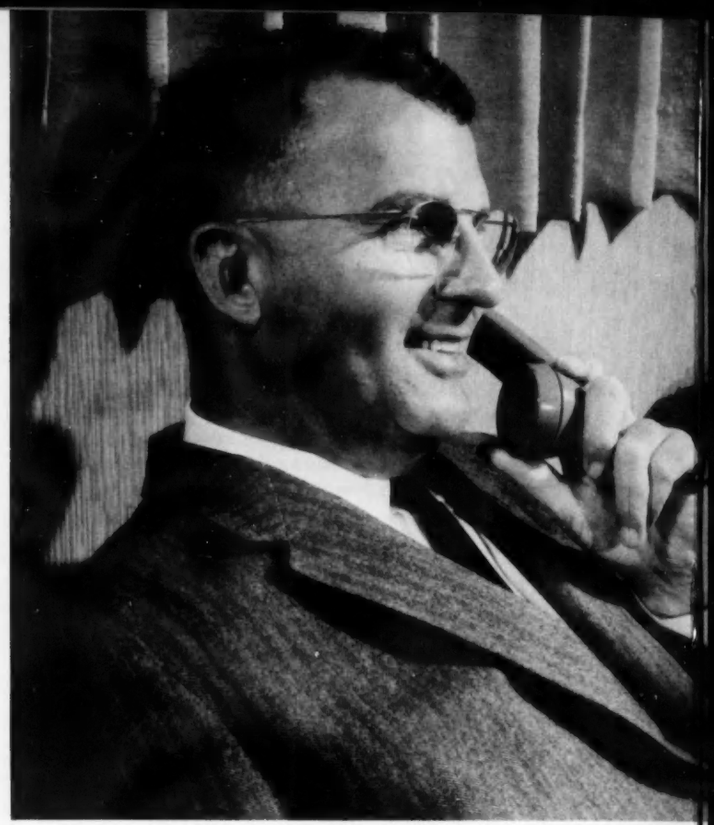
These are fundamental solutions but they do not of themselves necessarily accomplish our purpose. It will not suffice to use them merely as cost-saving devices within a predetermined concept. Their use must be fundamental to the design of the system of which they are a part. They must be used to make possible new concepts which are inherently lower-cost approaches.

Importance of Multiple Applicability

If technical solutions are truly fundamental, they are likely to be not only simple, but—equally important—they will have multiple applicability. Whether the problem is a missile or a space mission, a new metal or a new fuel, its cost and its feasibility will be largely determined by the breadth of its usefulness. A guidance solution which is usable on both a missile and a space vehicle reduces the cost of both. A fuel which helps us reach the moon but has no other application will very likely be prohibitive in cost.

To illustrate, a technological advance which would enable an aircraft, for the same cost, same fuel, same crew, same payload, to remain aloft for 70 or 80 hours instead of 12 or 15 hours would immediately have the most profound effects on the cost of performing certain aspects of the strategic mission. Indeed, it could alter the very concept of the mission. At the same time, such a solution would have further constructive effects on other missions involving the transport of material and forces. Such a solution would have its impact on civilian air transport which in turn would benefit the economy and help achieve other national objectives. Thus, one technological advance, because of its fundamental character could yield a reduction in the cost of a primary mission, could thereby free resources for allocation to other missions and, in addition, could add to the productivity of our economy.

Essentially, our present competition with the Russians is a struggle to see which nation and which way of life can learn to make the maximum use of the resources at its disposal. The first nation to do so on a fundamental scale will certainly achieve an advantage of the first magnitude. Whether or not we direct our technology toward this goal, there is no reason to believe the Russians will neglect it. It is up to our defense managers in both industry and government to raise their sights, to help create this environment and to lead in these new directions.



A pioneer in U.S. electronics industry calls for fuller use of the free-enterprise approach to defense spending. This requires better public understanding of the true relationship between large and small business.

One way to increase procurement efficiency

by L. Berkley Davis, General Manager, Electronic Components Division, General Electric Co.

While much of our "Cold War" planning must be based on assumptions and suppositions, there is one cold, hard fact we can take into account: defense equipment will continue to grow more complex—*and more expensive!*

The task of coordinating U.S. resources and talents—in government, science and industry—is almost staggering in its proportions right now. Imagine how ponderous it will be in the next decade, and you can appreciate why more and more people are asking "Can we really afford to match the Russians, dollar for dollar, missile for missile?"

Obviously, we can afford survival—at any price! But our ability to increase the efficiency of U.S. defense dollars may well determine just how steep that price will be. We cannot tolerate inefficiency in defense spending, for we've already reached the point where every dollar added to defense is a dollar painfully taken away from our dynamic consumer economy. Greater efficiency is one of our surest ways of preserving a healthy balance between the defense budget and the Gross National Product.

Best Product at the Best Price

One of the first steps in maintaining this balance is for all of us on the defense team to strive to create an environment in which government procurement *can* function efficiently, free from artificial public and political pressures. Freedom to tap the best sources for development and production of defense equipment—without the constant necessity of checking to see who got the last contract, which firm or area "needs" the business, how big or small

GENERAL ELECTRIC COMPANY

ONE RIVER ROAD, SCHENECTADY 5, NEW YORK, TELEPHONE FRanklin 4-2211

APPARATUS SALES DIVISION

February 23, 1960

Because this issue of THE GENERAL ELECTRIC DEFENSE QUARTERLY not only deals with a subject requiring close educational attention, but also features an expert panel of university professors in discussing it, we are again sending a copy for your review. The subject is "Defense Needs and Economic Growth." The panel is made up of seven Harvard University professors, gathered specifically for the purpose of presenting the educator's viewpoint on this timely issue. In addition, there is an individual appraisal by Dr. Klaus Knorr, Associate Director, Center of International Studies, Princeton University.

If we have not heard from you since sending our October-December 1959 edition, we would be most interested in knowing if you would like to continue receiving the DEFENSE QUARTERLY on a complimentary basis. And, as always, we welcome suggested subjects you or your staff would like to see discussed in future issues of the DEFENSE QUARTERLY.

Sincerely yours,

G. E. Bradley

Gene E. Bradley, Editor
THE GENERAL ELECTRIC DEFENSE QUARTERLY

L. Berkley Davis enjoys a dual vantage point in analyzing today's "Defense Needs and Economic Growth" situation. As general manager of General Electric's Electronic Components Division, which produces both defense and commercial products, he is brought in daily contact with both markets. As a management member of a large corporation, but functioning exclusively as a sub-contractor in defense work, he sees both sides of big business-small business relationships.

Mr. Davis, who has more than 25 years' experience in the electronics business, guides a major segment of General Electric's electronics activities. Under his direction, departments in Owensboro, Ky.—his headquarters—Schenectady, Syracuse and Auburn, N. Y., develop and produce a broad line of components in the areas of cathode ray tubes, power tubes, receiving tubes, semi-conductor products and rectifiers.

—*quickly*

a company may be—is essential. The government's charter in defense procurement should be simply to buy from the firm that has the *facilities and know-how to produce the best product at the best price.* This takes into account the fact that some projects require extensive "facilities" and "know-how" and others do not.

Unfortunately for the U.S. taxpayer, outside forces often hinder the Pentagon's following such a simple procurement policy. One of those ever-present pressures is born of the misunderstood relationship between large and small firms, and the role of each in defense business. It is manifest in a kind of public distrust of "Big Business," a feeling that large firms are out to devour the smaller ones. For example, I recently came across a syndicated newspaper column titled "Big Squeeze on Small Business." In it, the author told about a small firm that had lost $128,000 on a cancelled military contract, while a large firm had quickly recovered many times that amount on the same contract. From this single example—and my guess is that the facts merit closer examination than they received—the author concluded "we need a special investigation . . . to bring justice to little companies being starved out by big business at the Pentagon." It just isn't so! But the story is a striking illustration of the kind of environment we're faced with today.

It is a fact that more and more of the *prime* defense contracts are going to large-scale corporations. But this trend has nothing to do with political "pull." It is simply a result of the increased emphasis on research and development—and the resources a firm must possess to handle today's huge R&D programs. But the sub-contract potential constitutes a tremendous market for firms of every size.

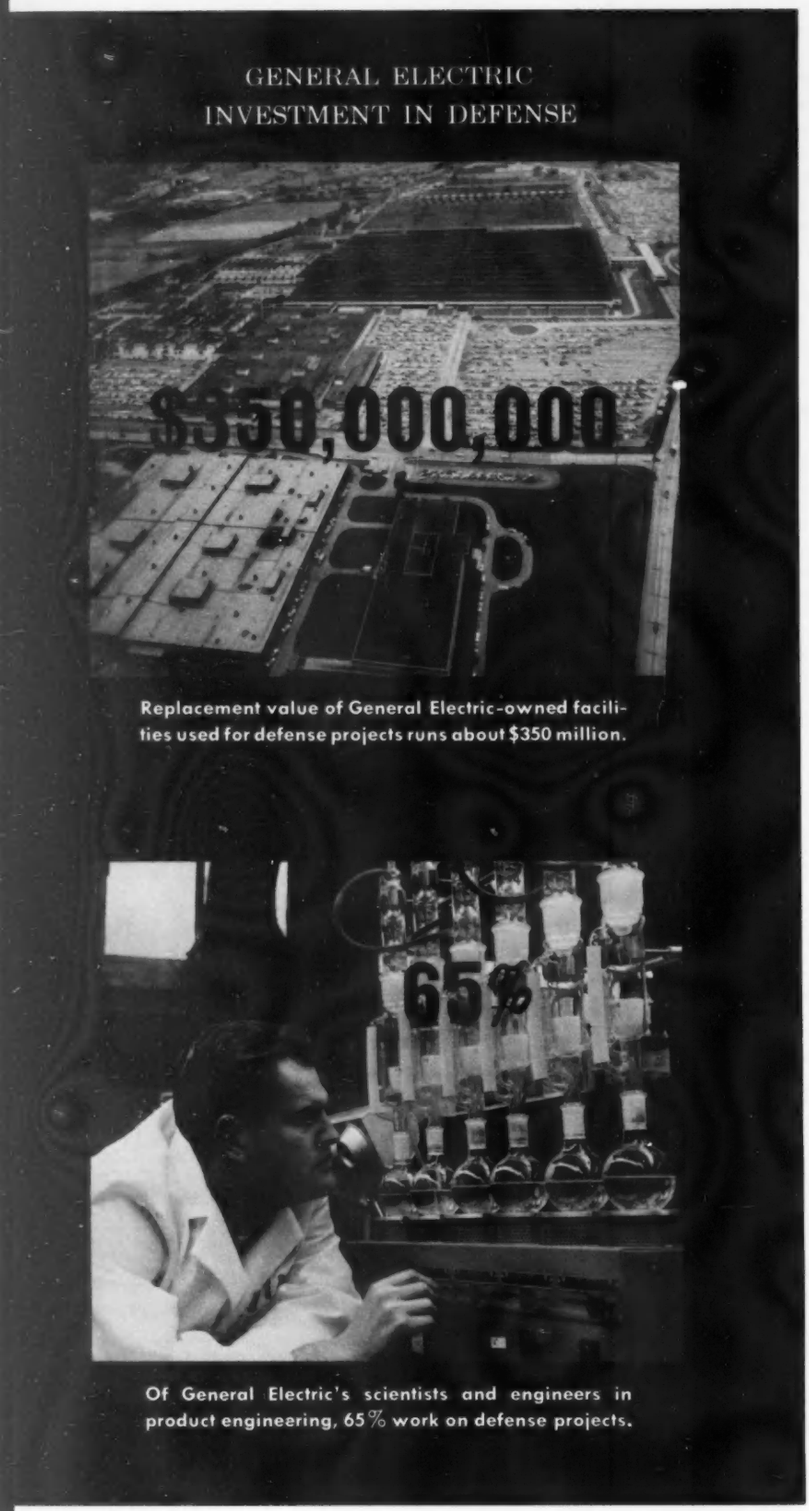
"Guardian Angel" Procurement Must Go

Since public opinion is strong, however, despite a body of facts to the contrary, the so-called "opposition" between large and small business has become a political issue. As a result, military purchasing authorities are gently pressured to look out for the firm that "isn't getting its share of the defense dollar." This single factor—often referred to as "guardian angel" procurement—is costly to taxpayers right now. It could be disastrously expensive in the next 10 years.

But what can knowledgeable people—those who know large and small firms are more like teammates than opponents in the defense business—do to enlighten the public? For a starter, we can expose this kind of procurement for the

"... there will always be large companies and

on one another for tasks they


GENERAL ELECTRIC
INVESTMENT IN DEFENSE
$350,000,000
Replacement value of General Electric-owned facilities used for defense projects runs about $350 million.
65%
Of General Electric's scientists and engineers in product engineering, 65% work on defense projects.

inefficient waste it really is. We can explain how it works in direct opposition to our principles of competitive free-enterprise. And we can insist that it is one inefficiency that must be eliminated if we hope to enjoy better defense *and* better living in the 1960's. And, after all, what more are we asking than that we adapt future defense spending as closely as possible to the same free-enterprise way of life that has made us the richest nation in the history of mankind!

The specific facts that comprise the real story of large and small business are obvious. But it's just as obvious that we have to focus more attention on them. For instance . . .

1. Success in the defense business depends more upon the size of a firm's *ideas*, not the size of its capital investment!

Competence should be the key to success in defense activity, just as it is in almost every other commercial endeavor. Military procurement people are like any other customers. They want the best product at the best price. They need a supplier who can produce a dependable product: efficiently, economically, and on schedule. And, when they find him we all profit. Success is rewarded. Inefficiency is penalized and the taxpayer gets efficient, businesslike defense procurement.

From the dual business vantage point which I enjoy (working for a large corporation but functioning exclusively as a subcontractor in defense work), I can see daily proof that it doesn't take a massive investment to compete successfully. All a firm needs to get ahead of the other fellow in the electronic components business is a small group of talented, creative engineers . . . and a great deal of ingenuity. Firms that attempt to compete in my business without one—or both—of those essentials will soon be weeded out by natural economic laws.

2. The nation needs both large and small defense contractors . . . and large and small contractors need each other.

The defense business is complex and fluid. There is continuous turnover in the people who buy for the government, and the people who sell to them. Equipment is becoming more involved every day. Research costs are multiplying rapidly. And, in the face of all these cost-increasing forces, the Depart-

small companies, dependent

cannot economically handle themselves."

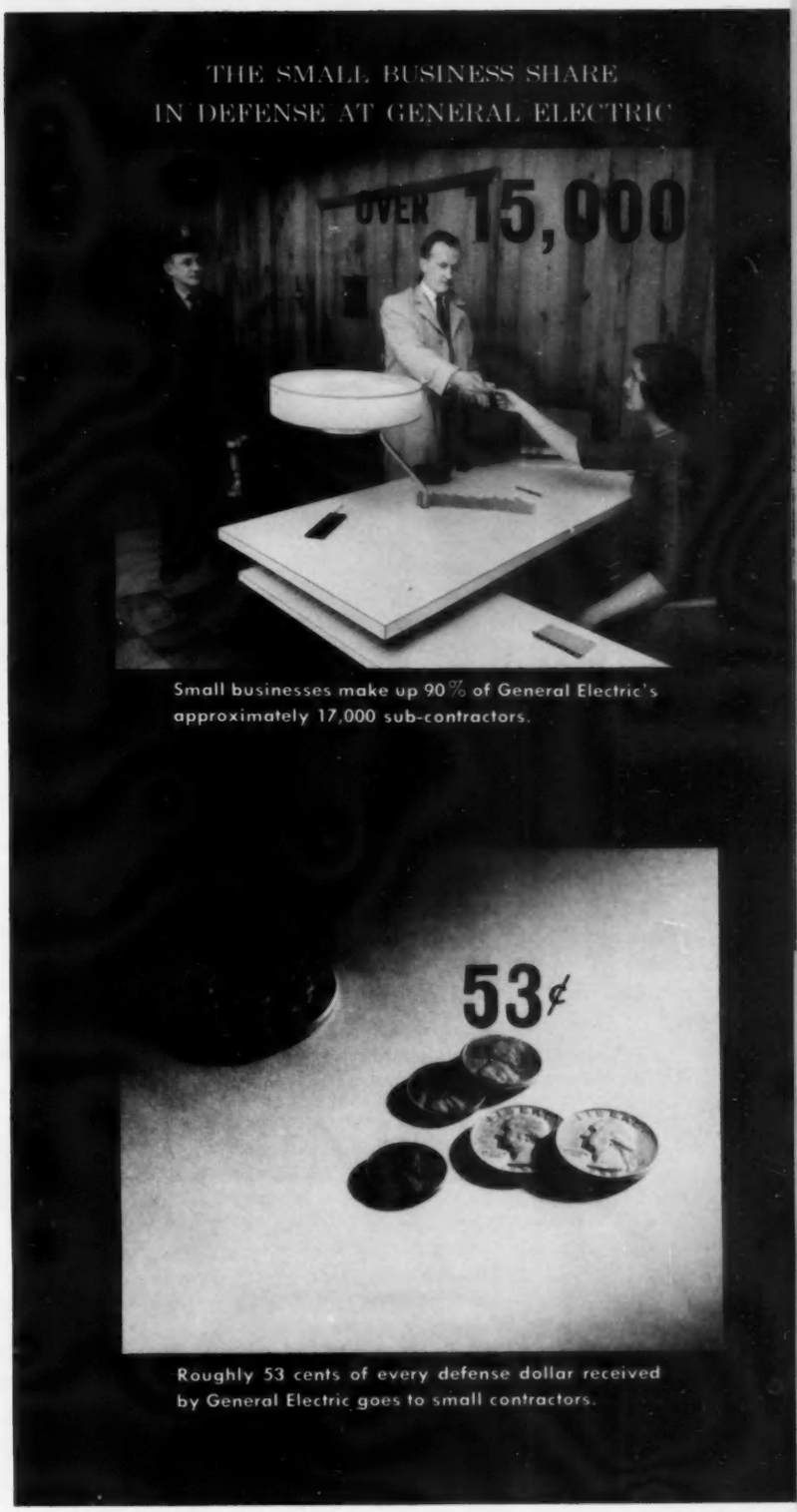
ment of Defense has announced plans to hold its budget at the current $41 billion rate throughout 1960, '61 and '62.

Obviously, efficiency will be a determining factor in who supplies what defense equipment. This alone will have a great deal to do with which firms remain in the defense business . . . for some will have to make capital investment decisions . . . some will have to streamline production methods . . . some will have to merge talents to keep up . . . and some may have to consider entering less competitive markets. But throughout this evolution, there will always be large companies and small companies, dependent on one another for tasks they cannot economically handle themselves.

65 Per Cent Manpower on Defense Work

For example, take the nearly countless tasks that must be accomplished before one of today's typical defense projects, like a ballistic missile, can be designed, built and launched. As an example of the kind of investment this requires, at General Electric we estimate that our present Company-owned facilities used for defense purposes have a replacement value of about $350,000,000. And approximately 65 per cent of our total scientific and engineering personnel engaged in product engineering are employed on defense work.

Once the project is firmly under way it quickly and logically breaks down into a multiplicity of smaller tasks, many of which can be performed economically and competitively by small sub-contractors. Thus the prime contractor has a broad base of efficient suppliers to help keep the over-all project on time and on budget. The small firm has a defense job it could not possibly have undertaken in any other way. At General Electric this base is made up of some 17,000 outside firms, 90 per cent of them small businesses. Roughly 53 cents of every defense dollar received by General Electric is passed along to small contractors. Without this supplier base, we couldn't handle our projects efficiently. Without the large-scale company to break the project into smaller pieces, the smaller firm could not participate. Indeed, we need each other . . . and we both know it!


THE SMALL BUSINESS SHARE
IN DEFENSE AT GENERAL ELECTRIC
OVER 15,000
Small businesses make up 90% of General Electric's approximately 17,000 sub-contractors.
53¢
Roughly 53 cents of every defense dollar received by General Electric goes to small contractors.

". . . courage to take bold strides will always be an important criterion for . . . success. . ."

3. **The same kind of things determine success for large businesses and small businesses.**

There are ample opportunities for firms of all sizes in defense. And, given an atmosphere of the-contract-goes-to-the-most-competent procurement, a firm's success and profit will rightfully be determined by its ability to "measure up" in a few fundamental areas . . .

a. **Product superiority.** The "big idea" is paramount in importance. As long as a firm has ingenuity and aggressiveness, it can win contracts, regardless of its size.

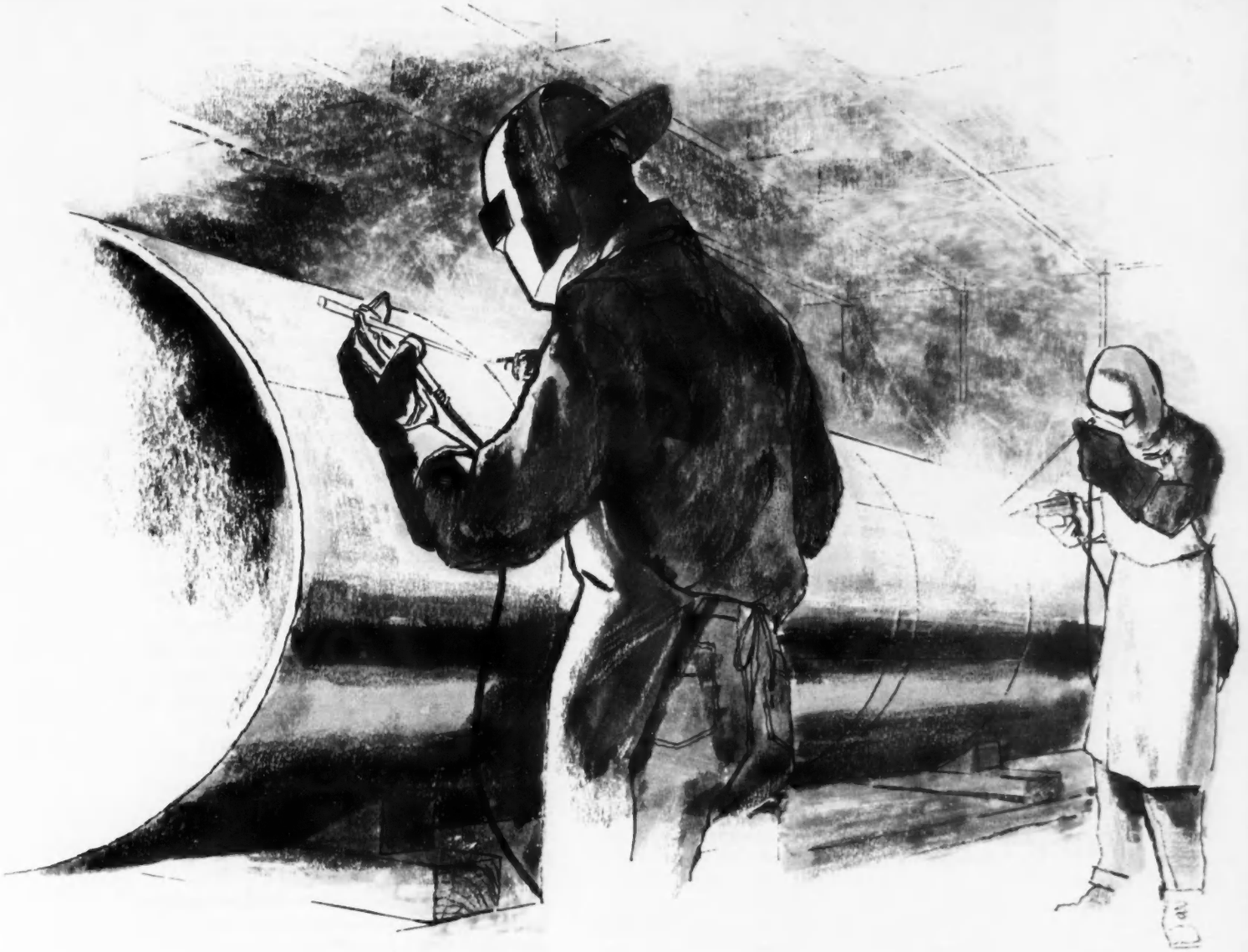
b. **Reliability.** Here's an area where there's a great deal of "elbow room" for every defense contractor. And it isn't limited to big companies. Remember, to put a satellite into a precise orbit, to keep it there for its lifetime and to have it record and transmit accurate data on outer space, requires complete reliability from even the tiniest electronic or mechanical component. A failure in a 15-cent bolt could destroy millions and millions of dollars worth of work. Incidentally, one of the prime opportunities of small businesses might well be in increasing the reliability of mechanical devices. At one time, for example, a survey showed that automobile owners found the radio to be practically the most troublesome item on the car. Recently, a similar survey showed that the radio had dropped to about ninth on the complaint chart.

c. **Management initiative.** The true basis of the U.S. free-enterprise economy—courage to take bold strides—will always be an important criterion for business success, whether it's the defense business or a commercial enterprise. For example, Lieutenant General Irvine, USAF, Retired, former Deputy Chief of Staff, Materiel, said not too long ago, "Technical competence of companies will begin to parallel each other . . . initiative and cost control may decide" who gets the contracts.

Today, companies can do much to continue streamlining operations. They can strive to build "added values" into their products . . . at no extra cost. And they can display the confidence to take the necessary risks. Again, if the environment is right, no one will have to prod them. Competition will do it naturally.

As you have probably realized by now, all I've done in this article is repeat some fundamental concepts of the American way of life. Still, they merit repeating! Because the closer we get to them—the better we succeed in blowing the smoke-screen from this big business–small business "opposition"—the more efficient our defense procurement will be.

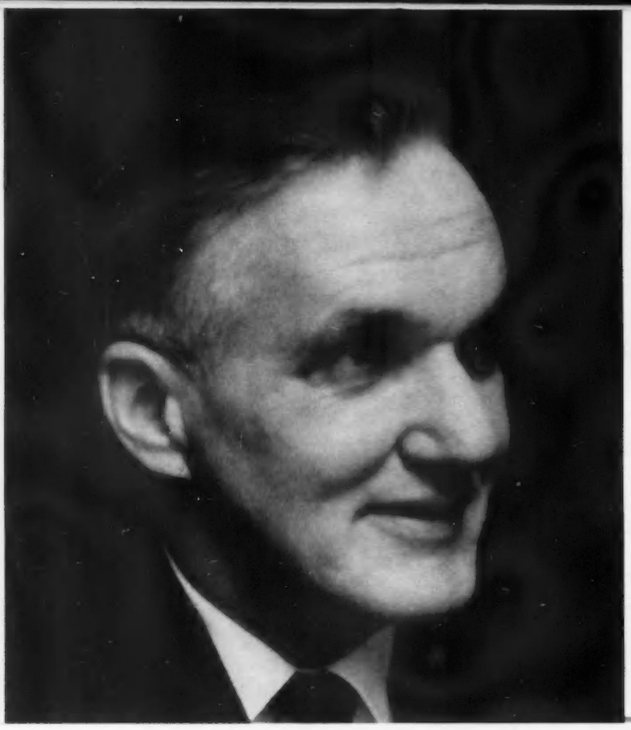
We don't need a "special investigation" to tell us the facts about large and small businesses. They are readily visible to anyone who looks for them. We do have to make sure that people look! Our ability to tell the big business–small business story in terms the American public will understand and appreciate, may well have a great deal to do with our ability to provide better defense *and* better living for our country in the decade ahead!



THE ROLE OF SMALL BUSINESS

by Elliot E. Wentworth, Vice President, Cincinnati Vulcan Company

"The small company's strength and growth potential lies in the genuine dignity each of its members feels in working for that group." A management leader in this vital segment of U.S. industry tells how this attitude can pay off in increased small business opportunities, as well as in significant contributions to the nation's defense needs and economic growth.



They know him in Cincinnati. Hardly a table of luncheon-eating businessmen in the University or Queen City Clubs but has a friendly nod for the vice president of one of Cincinnati's ancient industries, the Cincinnati Vulcan Company.

At the factory, old employees remember Elliot Wentworth as a little lad tagging along with his father. He knows the business from the ground up. Cincinnati Vulcan began business many years ago down on the river front, near the old boat landing, manufacturing fine copper kettles. Today the company builds chemical plants, refineries, the big copper, lead, zinc and steel systems of an industrial society. This equipment is installed all over the U.S., in Formosa, Germany, and so on.

An outdoorsman, Elliot plays tennis, mows his own meadows, roams the hills. A churchman, he vigorously promotes the Christian faith. He meets criticism and stolidity with, "Let's think out loud on this together." These words are reflected in his analysis of "The Role of Small Business."

Nate White, *Business and Financial Editor*
THE CHRISTIAN SCIENCE MONITOR

"It is time for small business to take a new look at its own evaluation of its place in this market."

There are thousands of small businesses throughout the United States having the opportunity to participate in the over-all concept of an adequate defense system in a sound economy. But, do their managements always appreciate this opportunity in view of the fact that the bulk of all defense contracts is placed with large, nationally known manufacturing and engineering companies? Published figures from Washington indicate that $90 billion of defense contracts placed in a particular period went directly to large organizations, and only one-half billion directly to small companies. Here is the problem, the potential pool, and the great opportunity for small business. It is time for small business to take a new look at its own evaluation of its place in this market.

Many Opportunities

Just as these large companies have their responsibilities to the nation, to their immediate buying public, to their employees, to their managements, and to their stockholders, so too have smaller companies (those employing 500 or less people, according to the Small Business Administration standard). An appreciation of the opportunities in the defense marketplace by many of us in small business who may have products and services to sell there will not only improve our positions in that sprawling market, but even more basically will allow us to contribute some small part to the growth line of the over-all national economy.

It is almost trite to remind ourselves that the whole economy is no stronger than the sum of its parts. Therefore, the great national organizations which are furnishing services and equipment to the Army, Navy, and Air Programs properly expect their many thousands of small "feeder" or sub-contract suppliers to be healthy and vigorous in their own economic and social identities. This very expectation creates immeasurable small business opportunities. As a member of a smaller company employing approximately 450 people when operating at peak capacity, I find it difficult to agree with those who suggest that it is extremely difficult and even hazardous to bid on and work for prime contractors tied directly to the defense effort.

Problems of Sub-Contracting

Haven't we often heard managements of small companies say that they would much prefer to avoid the terrific strains of sub-contracting with large organizations doing primarily government defense business? Perhaps justification is based partially on the following arguments:

1. the question of quoting on all of a project or none,
2. the "beastly slow flow" of funds from the Government Agency to the large prime contract company to the small subcontractor,
3. the serious difficulty in often not being able to get adequate working capital to finance internally when large amounts of company funds are so tied up,
4. the mountain of "nine copy paper work" involved,
5. the superimposed inspection system required,
6. the sheer pressure of defense expediting, being asked for unusual preference over peacetime work going through the shops,
7. the pressure of heavy experimental costs without a commensurate coverage in orders.

These complaints are a few of the many which impel small company managements to eventually shy away from facing up to a national responsibility and a social opportunity to participate and grow in a continuing "guns and butter" economy.

Small Companies Have a Voice

Why shouldn't representatives of small companies feel free to call for a change of thinking concerning such problems by larger defense contract organizations? Is it a lurking fear that whoever they might be—if they are the customers—they cannot be approached on legitimate complaints? But, if there is an attitude of indifference or complacency toward the whole problem of national defense and survival, then each of us has his small part in asking himself what must be done to change, and change quickly.

The small company's strength and growth potential lies in the genuine dignity each of its members feels in working for that group. Since that group's real competition is in its own ability to be continually more competent, if each employee recognizes a high purpose in working not only for a wage, but for a common company and national cause, his enthusiastic attitude will reflect in improved efficiency for his company. The sum of all such improved efficiencies will mean a better product at a lower price for both the "guns and the butter markets" making up such a large portion of the over-all American economy. This then is true economic advancement in the best sense of the word.

Diversification Pays Off

Our company has some good experience in this defense economy. It has included engineering and manufacturing contracts for diverse types of defense program work. For example: 1. development studies in a semi-research area for a large chemical group, 2. equipment for an important arsenal on the east coast, 3. a series of military engine test-stands for a large engine manufacturer, and, 4. heavy fractionating tower units for an important technical agency of the Federal Government.

The technical experience gained in processing such jobs has been helpful in bidding projects involved in the peacetime markets of the chemical, petrochemical and the petroleum industries.

Obviously, the small company needs added volume to cover fixed overhead burdens which tend to slowly increase in an inflationary interval such as the entire postwar period. Thus, any overhead hours recovered on a defense sub-contract are just as helpful as those recovered in work processed on those month in and month out projects wherein the end products may ultimately be used by companies manufacturing synthetic industrial alcohols, acids, and other chemicals.

Peacetime Services an Asset

It is a fact that as the volume of peacetime services is enlarged, there is added opportunity for the smaller company to invite research and/or development thinking with companies involved in the defense effort. And why not, if peacetime services emphasize the importance of continuing development studies in order to maintain a strong competitive position?

So it is that development studies are often invited by the companies tied directly to defense. Their sympathetic approach to the problems of small companies doing this kind of added work is well known. Costs are realistically approached and the responsibility for the paying of such costs is often borne by the base companies. And this is the way it should be, inasmuch as our experience has indicated that the non-defense manufacturers expect to have such preliminary costs included when contracting on over-all jobs. In other words, practical experience at least suggests sitting down with the large companies and thinking through on the problems involved before going ahead.

Thus, the plea is that managements of both large and small companies ask themselves—wherein can they find a common ground of cooperation in serving each other, in this good purpose thinking—each really needing the other? Not only then are their immediate groups benefitted, but their social responsibilities to the nation are carried forward, and thus a whole people is protected and improved simultaneously.

Perhaps never before has the businessman been so much in the spotlight of international affairs as today. In this special Defense Quarterly *round-table by seven Harvard Business School professors, the reader finds a penetrating analysis of today's Communist threat and how the U.S. must respond to it. The following discussion was arranged in the hope of putting into focus the businessman's role and responsibility in securing adequate defense coupled with economic growth.*

Lenscraft

Mr. Vernon *Mr. McNair*

Marshalling Business to Meet the Communist Threat

A panel discussion by seven faculty members of the Harvard Business School

Mr. Livingston *Mr. Bursk* *Mr. Cherington* *Mr. Gordon* *Mr. Lintner* *Mr. Levitt*

E. C. Bursk, panel moderator, and editor of the internationally-recognized *Harvard Business Review*.

Paul W. Cherington, Professor of Business Administration and Director of the Harvard Business School's Weapons Acquisition Study; has served government and industry in many research and consulting capacities.

Lincoln Gordon, Professor of International Economic Relations; extensive government association including Marshall Plan and NATO; currently advisor to State and Defense Departments and consultant to the State Department on foreign economic policies.

Theodore Levitt, Lecturer in Business Administration; former oil industry and economic consultant; authored recent study of executive expectations on the Cold War and possible consequences.

John Lintner, Professor of Business Administration; economic consultant at various times to numerous public and private agencies, including the Ford Foundation, Congress, Treasury Department.

J. Sterling Livingston, Professor of Business Administration; for some years consultant for the military services and defense contractors, serving as a specialist in military management and sales organization and administration.

Malcolm P. McNair, Lincoln Filene Professor of Retailing; pioneer in study of retailing costs and authoritative author and speaker in this field.

Raymond Vernon, Professor of International Trade and Investment; for a number of years in charge of the State Department's Office of Economic Defense and Trade Policy.

MR. BURSK: The question of a cold-war thaw opens up the whole subject of the Communist international military threat and how the United States must respond to it. Beneath the headlines, what are the cold military facts? Let's see if we can get these out into the open, and then move into the question of how we as a country—and particularly as businessmen—must mobilize to do what needs to be done.

First of all, what are the long-range *military* goals of world Communism? Are they still world domination, by revolution and force if necessary? Or is it possible that there has been some tempering of these goals or some postponement of them because the Communists are being diverted by the desire to build up their consumer goods sector, for example?

MR. McNAIR: I don't see that there has been any change in the long-run Communist goals of world domination. Whether you deem that the Communist aims are those of world subjection by military force or whether you consider that their aims are longer-run aims of world domination simply by doing a better job and producing more and being smarter than we are, still I say that it is a competitive world and we have to figure out how to meet that competition.

MR. GORDON: I think they will apply force if they think that method will be successful and safe. They will expand without the use of force if they think another method is more successful and less dangerous. Whether the use of force looks safe to them or not depends largely on the position with which we confront them.

Continuing Aggression Assumed

MR. LEVITT: I think, on the basis of their action in relatively recent years, that we can assume they are continuing to act in aggressive ways. Whether or not they *intend* to act in such ways is really not a matter of our concern. I think that the fact that they *are* acting and have acted in recent years in ways that are distinctly competitive to us is enough basis for us to raise a question as to what kind of defense policies we should have.

MR. VERNON: What we are really confronted with is not exclusively a problem of the projection of some of the rational concepts of a system, asking where it is likely to lead because of the internal rational aspects that propel it, but also what is likely to happen in a society where we can't predict who the next driver will be. The next man at the helm may have a very different kind of approach and outlook from the last.

MR. LINTNER: They have many goals and the choice of several different means of achieving them. We need to hedge and protect against all of them, since they will use whichever devices seem most promising in the light of any weaknesses in our posture. I am convinced that this country has the wealth and the capacity and the power—*if* we are given the necessary leadership and information—to hedge against these various contingencies; and we are in a situation, therefore, where we need adequate military defense to deter conclusively and forever Russian aggression in whatever form it takes. At the same time, we must hedge our position by being even more vigorous in our foreign aid, our economic leadership in the world, and a development of a whole sounder policy based on a higher growth rate in our country.

MR. CHERINGTON: I think that there is one new element in the last four or five years, and that is the rise of the Communist Chinese. It is very hard to appraise whether this makes the situation more dangerous or less dangerous, but I don't think you can look at the Russians without at the same time looking a little farther east. You still have a big danger, but what the effects are going to be over the next five years will be very hard to forecast.

MR. GORDON: If we and our friends in the west were now to engage in unilateral disarmament, then the likelihood of military aggression would become overwhelming.

MR. LIVINGSTON: It seems to me that everything the Russians have done has been consistent in one sense: consistent from the point of view of both military and psychological preparation for war. The fact that we have a period of rapprochement does not seem to me to be of any real evidence that they have changed their goals or their names—or even their techniques.

MR. LINTNER: If they do not have war and do not beat us on the military field, they will play on the economic field and hope to beat us there.

MR. BURSK: If they were going to do something military, isn't time starting to run out now?

MR. LEVITT: No; it hasn't started.

MR. LINTNER: The missile gap is ahead of us.

MR. LEVITT: It was only until 1949 that

ld military facts?"

we had the advantage with the bomb.

MR: BURSK: What about their relative military strength?

Critical Period in 1960–1965

MR. LIVINGSTON: The period of greatest danger is going to occur some time between perhaps the first of next year and, say, 1965. The Chief of Staff of the Air Force has put the most critical date as 1962. This is the period when our deterrent will be decreased to its greatest extent and the Soviet advantage reaches its greatest peak. After that period (1962 to 1964), I think there is much evidence that the danger will decrease fairly rapidly for at least a period of a decade.

The Soviets are building very rapidly a reasonably capable air defense system. The combination of anti-aircraft missiles and radar will give them increasing capability to prevent penetration by our Strategic Air Command. After, say 1962 we will be using ballistic missiles. There is no known system that the Soviets have or that we are developing that can stop the missiles. After 1962 or thereabouts, they become increasingly vulnerable to our deterrent power.

MR. LEVITT: What about pocket wars?

MR. McNAIR: Wherever they think there is a point where they can profitably make a move of that type, usually disguised as a revolution or infiltration or what-not, I think that you can expect it. We have to be prepared to fight conventional or limited wars as well as atomic wars.

MR. LEVITT: We have to be prepared not only in terms of our military capability but also in terms of our strategic readiness or planned readiness.

MR. LINTNER: Do we have the capability of using anything except the atomic weapon in a pocket war?

MR. LIVINGSTON: When Dr. Teller was here, he was concerned that we had not developed our atomic capability to fight the limited war sufficiently; that we would not use the atomic weapon that we had—and if we didn't, we would very likely lose a limited war.

Political Problems of Limited War

MR. VERNON: The problem, I suspect, begins with the political environment in which the limited war is usually waged. It is commonly waged in a situation in which we seem to be the hostile force in the countryside and the countryside is in revolt against us.

Moderator E. C. Bursk Lenscraft

I have the strongest hunch that this question of limited wars begins with the question: What are the political measures that can best insure that our posture will not all the time be seeming to have to fight against the guerrilla warfare that surrounds us? The question of military hardware, I think, may turn out to be a relatively minor question.

If war breaks out in Cambodia, for example, I think there is a real risk that we will appear to be the supporters of a corrupt administration. This is an old dilemma in international policy, and it isn't simple. It is the old problem of having two forces, both of which are, from your point of view, unacceptable, but one is a lot more unacceptable than the other. Do you care to upset the balance of power you are now confronted with? This is the issue, I think, in limited warfare in many cases, rather than the question of whether we have the right hardware to wage a limited war. We will have enough hardware, I think.

MR. GORDON: This I am not so sure of. It seems to me that there is a political problem and also a hardware problem, as well as a problem of the size of the forces and means of transportation.

There is at least as great a danger, or probably a greater danger, of limited wars if this nuclear stalemate situation on total war can be successfully achieved and maintained.

It is a great misfortune that we are going to be in this position of relative inferiority for several years. If we are not attacked during this period and we survive—and if, after that period, the only military capability that we have is to deter total aggression—it seems clear that we are inviting piecemeal aggression, and we have to have ways of coping with that.

"The Communists now figure themselves, with considerable reason, to be moving into the commanding position."

The belief that we should use small nuclear weapons in limited wars bothers me, because both politically and militarily there are inhibitions against the use of even the smallest nuclear weapon, and these inhibitions are likely to continue. When we sent some forces into Lebanon, if that had led to active fighting, I can't conceive of our having found a useful way of applying nuclear weaponry, no matter how small. It follows that we need a substantial conventional force and we need the ability—which I believe we have not got adequately—to move it quickly wherever it may have to go. We need enough military manpower trained in these various types of warfare —everything from guerrilla on up. We ought to be able to deal with different types of situations with a quite flexible range of weapons and tactics.

Atomic Weapon Propaganda Succeeding

MR. LIVINGSTON: We are getting more and more in a position where we will be afraid to use any kind of atomic weapon, because the Soviet psychological propaganda is becoming so effective. It seems to me very clear that they are doing their best to lead us to the conviction that we should not under any circumstances use atomic weapons. This would be very effective, because it would mean that we would have to fight the kind of war that the Communists would be in a better position than we to fight, and it would put a greater strain on us than on them because we don't have the manpower to match—and right now, not even the equipment. The only way we can fight away a war, it seems to me, is to go along with the pattern Dr. Teller suggested.

MR. VERNON: Isn't there a danger that we might confuse the big war with the small one?

MR. LIVINGSTON: Yes . . . (pause). I would like to hear Linc Gordon's views on the present policy of France and its effect on NATO and our competitive military program.

MR. GORDON: I don't think France has the resources to be an independent great power in the world. The effect of de Gaulle's policy is that the NATO capability to deter limited aggression in Europe has been greatly weakened by the French refusal to join an integrated air-defense system. This refusal led to the withdrawal of our own fighter bombers from France. This undermines the one element of progress on our side which has been made in the last decade or so on the military front: facing the Soviet Union in one particularly valuable piece of world territory, Western Europe, with a perfectly clear-cut line which it would be suicidal for them to cross. This goal has never quite been achieved, but it was on the way to being achieved.

MR. McNAIR: Actually, the cold war has turned a very significant corner. The Communists now figure themselves, with considerable reason, to be moving into the commanding position. From here on they see it as a cat-and-mouse situation, and the West is the mouse.

MR. BURSK: Let's move ahead to the question of the role of businessmen. I don't think they are facing up to the problem.

Businessmen Can Be Heard

MR. VERNON: I think you can say that, in our society, businessmen are peculiarly in a position to be heard if they want to be heard, which distinguishes them from most of our citizens. Assuming that political action must take place and that it isn't taking place, we turn to the men who can be heard if they want to and we ask ourselves: How can the chances be increased that they will step forward and say the necessary words? If the U.S. Chamber of Commerce, the NAM, the CED, and the U.S. Council were all of one mind on the subject, this would have a very significant bearing on the action of the administration.

MR. McNAIR: We have talked about better provisions for fighting wars with conventional weapons. We have talked—by implication at least—of stiffening up our whole missile program. We haven't said anything about foreign aid, but it seems that increased foreign aid is part of this whole picture. And we haven't said anything about civil defense. Now what kind of total cost estimate should be put on those various objectives?

MR. LIVINGSTON: The Rockefeller report places the increase at about $3 billion a year cumulatively.

MR. McNAIR: Suppose it's as much as $10 billion a year out of $500 billion of gross national product?

MR. LIVINGSTON: I think the first step is to do something about making sure we don't continually squander our money on projects that we won't carry to completion.

MR. CHERINGTON: Things are moving so fast from a technological standpoint that it is perfectly possible to be spending several billions of dollars a year on programs that have been overtaken by events.

MR. LIVINGSTON: Regarding business responsibility, the businessman shouldn't be selling buggy whips, but products that we need for defense. Then there is this so-called prudent man concept, where people want to cut back military expenditures. Maybe our point is to try to figure out how, within the limits of what we can get, we can do a good job defense-wise.

MR. LEVITT: I think it was claimed that the economy can't afford it. I think it can be shown that we can afford it.

MR. LINTNER: The present cash value of avoiding the destruction of the American economy four years hence is just one whale of a lot bigger than $41 billion, $45 billion, $55 billion, or $65 billion.

MR. GORDON: I don't think we can afford this year the present value of the destruction of the American economy.

Perspective on Defense Spending

MR. LINTNER: Of course not. I can't afford to pay the full value of my house each year as an insurance premium, either. But it's surely prudent and good business for me to pay the annual premiums on the comprehensive insurance I do carry.

Let's get a little perspective on this thing. Just the physical property alone in this country at the present time has a value of over $1500 billion, and to protect all this—as well as our human resources and our lives and our freedoms—we're spending currently about $41 billion in the Department of Defense and only $46 billion on "national security," including such things as atomic energy and foreign aid as well. This is only 3% of our physical wealth and less than 10% of our current output (gross national product). To say that we don't dare raise our present $41 billion defense budget ceilings, or our $46 billion security ceilings, because we would run a small deficit is just plain foolish. It is bad economics and bad business.

I'm against inflation too, but inflation can be controlled and eliminated by higher taxes and sound monetary policy if we have the leadership and fortitude as a people to take the needed steps. And even if we don't, believe me, the bad effects of the accumulated inflation from the deficits which would be involved between now and 1962 or 1964 in building up our defense posture are like a very mild case of chicken pox as compared with a fatal case of cancer, in view of the alternative of destruction that Sterling Livingston is putting before us today. Avoidance of total destruction, or even a 10% reduction in the chance of its happening, would thoroughly justify an increase of several billion dollars a year in our defense budget on the basis of eminently sound and orthodox business and insurance standards.

One of the big—and frequently overlooked—reasons is that a $3 billion a year increase in the defense budget is less than 20% of the normal growth in our gross national product per year. This means that, if we get some leadership and actually—I'll have to check the figures on this—use this $3 billion and leave our present tax structure alone and hold other expenditures constant, we won't have beyond 1960 an unbalanced budget even if we've raised the defense budget in line with this. A good part of the increase in the gross national product can still go for tail fins, TV programs, houses, plant and equipment, and other consumer goods.

Given a 10% chance of destruction of the country five years from now—and this is perhaps justified in the terms that Sterling and others have been using—the American people would, I believe, even agree to forego for a four-year period increases in their standard of living if necessary. But the real point is that even that sacrifice isn't required.

MR. CHERINGTON: Whether it is $3 billion or $5 billion or $10 billion, I am not sure that we have any assurance that this would be spent on worthwhile objectives.

MR. LIVINGSTON: I take issue on that very quickly. The POLARIS program, for example, could absorb a very substantial additional amount.

Why Wastes in Defense

MR. BURSK: Why have we had these wastes? Where is the responsibility? Is this the fault of the military people or the fault of the people above the military people?

"Businessmen are being reoriented on the problem of determining

MR. LIVINGSTON: There are several reasons why. One is that we have a very complex system for the determination of military requirements. Because it is slow and complex, it does not respond as quickly as scientific advances respond. As a result, it is always behind scientific advances.

Let me give you one specific example: The military services never could make up their minds as to whether they should go ahead with the ballistic missile program until they had a scientific advisory group, the von Neumann group, tell them to go ahead. Up to that time, there had been no progress on the intercontinental ballistic missile program. When it came, it bypassed the normal channels of decision-making in the services. It was a special program that was set up specially, so it had to circumvent the whole normal mechanism for determining requirements. It is this cumbersome system that, in part, is responsible.

There is, I think, another thing—and here is where businessmen get involved: We had a very substantial number of businessmen who were trying to sell airplanes to the government when they should have been trying to sell missiles. A good part of the delay and difficulty occurred when these people were coming to the military services to help establish specifications for things they didn't need. They were fighting the last war instead of the next one.

Businessmen are being reoriented on the problem of determining military requirements. For the past 15 years, businessmen were *following* the military services in deciding what they should produce. I think we are now seeing businessmen coming to the military services in increasing numbers with concepts of new weapons, with concepts of how technological advances can be incorporated in our defense program. They are beginning to *lead* the military services in the determination of requirements. They can't stay in business unless they do this.

MR. CHERINGTON: Not because of a patriotic dream about 1969, but because the XYZ Company is going down the spout if they don't do this.

MR. LIVINGSTON: If businessmen do what they are supposed to do in a free-enterprise system, namely, concentrate on making a profit in this defense business, then the way it's set up now they can contribute best to the country's protection by doing what essentially is best for them; namely, developing advanced weaponry which will get them contracts.

MR. McNAIR: Can spending from $3 billion up to conceivably $10 billion be done without undermining our ability to stay on an even keel and keep healthy economically?

MR. LINTNER: There is flat, conclusive proof that it could. I haven't yet heard anyone say that the Korean defense effort undermined the strength of the American economy post-1953. We had to do what we needed to, to stay with the Chinese and the Russian threat, and we did it without real strain. There were favorable by-products, but no one would advocate defense expenditures for these. We could increase our defense budget by $10 billion over a three-year period and still have a rising standard of living in the country and a balanced federal budget—and we could do it without inflation, if we had the leadership. We could do it, if only the administration and the leadership on both sides of the aisle were sold on the need for it and would convince the public of the need for it and get the public behind it.

MR. GORDON: What about additional taxation? Take a $10 billion increase.

Additional Taxes Not Required

MR. LINTNER: I don't think it would take additional taxes for $3 billion a year after the first year, but it would involve holding down increases in the expenditures, of course.

MR. VERNON: You mean three, then six, then nine?

MR. LINTNER: Yes; the gross national product will be going up $15 billion a year. The federal tax-take on that is upward of 20%, which is upward of $3 billion. So, if you hold

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Mr. Livingston Mr. Bursk Mr. Cherington

military requirements."

other expenditures in line, it could be done. Now, other expenditures on existing programs automatically increase about $2 billion a year, but something can be done to reduce that for these purposes.

MR. McNAIR: Let's call it $10, $20, $30 billion over three years. Then maybe you are up against a situation where you have to contemplate a willingness to cut down agricultural benefits, for example, and transfer that money into the defense budget. And you would have to cut down on other benefits. And you would have to expect that labor would be willing to forego some featherbedding.

MR. LINTNER: You would have to accept increased taxes.

MR. McNAIR: Weigh such costs against the alternative: the chance that we may be knocked out.

MR. BURSK: What will happen if, as a result of what looks like a cold-war thaw, defense spending is, well, if not cut, sort of temporized and slacked off a little? What about our ability to make this kind of transition?

MR. GORDON: May I make one comment before John Lintner answers that? It is quite clear that any arms-control system that is tolerable for us would not involve any appreciable savings in defense expenditures in the now visible future. The reason is that a tolerable arms-control system is one which provides more stable deterrents. This involves certain costs in itself, on the one hand, for inspection and control. And, since it is going to be directed, if it comes at all, toward making it less and less likely that anybody uses strategic nuclear weapons, it also involves an even greater expenditure on conventional war capability. Many people are fooling themselves when they keep posing this question.

MR. BURSK: I agree with you, but it needs to be answered for three reasons. One is the obvious, patent reason; that is the way I put it in here. But it needs to be answered for two further and more important reasons. One is because, real or not, this presumably is a deterrent to businessmen's thinking about this thing. Whether it is real or not, they are worried about it. Second, on the international scene, one of the things, as I understand it, that you keep getting is the idea that we are afraid to do these things because we are afraid of our ability to adjust. So we need to answer it not only just because it may be logically necessary some day; we need to answer it for its psychological impact today both on United States businessmen and on the world.

MR. LINTNER: Do you want me to answer it in terms of from $46 billion down? How far down?

MR. BURSK: $46 billion to $40 billion.

A Prolonged Recession Unnecessary

MR. LINTNER: So far as the ability of the economy to withstand such a cut is concerned, there is no question that, if a major cut in the $46 billion outlay occurred in a short period of time—and nothing were done about it—it would jar the economy. Economists and, to an increasing extent, our leaders, have the knowledge of what needs to be done, but it would require planning in advance. There need not be any substantial or prolonged recession from such a decline in federal spending. We must simply recognize that a tax cut would be required—and required immediately in at least as large and probably a somewhat larger dollar volume than the first year's cut in federal spending.

Secondly, I think it is desirable on social grounds, as well as eminently desirable on economic grounds, that the federal government directly and/or through federal contributions by way of state government, get back on the past trend line of needed public improvements —housing, educational outlays, highways, hospitals, and other public services. We are going to be doing less than our obligation to our children if there isn't an increase in educational outlays of something on the order of over $10 billion over the next few years.

If there is, say, a $16 billion cut in the

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Mr. Gordon Mr. Lintner Mr. Levitt

"...perhaps the decisive factor will be the relative management capabilities of our system versus the Soviet system..."

defense budget in the first year, I would suggest that increased expenditures on these other things to the extent of perhaps $6 or $8 billion be scheduled in advance, so that the net cut in the federal spending would be $8 billion; and then I would cut my taxes $10 billion in the first year, with the expectation that I would then be in balance again in the second year as the result of the resumed growth in the over-all gross national income.

MR. BURSK: You are assuming, then, that this would have some kind of a stimulating effect on the economy?

MR. LINTNER: Yes, after the immediate transition period.

MR. LEVITT: What is going to happen during a period of small cutbacks—for instance a 10% cut?

MR. LINTNER: $5 billion in one year? The only thing that you would have to do would be to bring the taxes down at least in dollar amount as promptly as the cut in expenditures.

MR. LEVITT: We did that in 1953. It didn't work.

MR. LINTNER: Excuse me, but there were two differences there. There were $17 billion cut from defense expenditures, but only $8 billion were cut from taxes; and the cut in taxes lagged 10 months behind the cut in defense expenditures.

MR. BURSK: I take it that what has just been said by virtually everybody is that we have a tough situation of a small percentage of probability but with a very high degree of risk in it. That is, the chance of war may be only 10% but the 10% would be so awful that the cost of preparing for it is kind of an insurance premium.

Businessmen have two roles. One is to exert their influence on the government as much as is necessary, and we can do this. Then, not only should we be prepared to spend the money, but the converse comes along and we should be prepared for not spending the money.

MR. LINTNER: This takes advance planning.

Businessmen Must Exert Themselves

MR. BURSK: Yes, but this kind of leadership depends on businessmen exerting themselves. One of the things we found in Ted Levitt's study, if I remember the figures right, was that 75% thought that things were getting better internationally, but only 50%, roughly, thought that this was going to have much effect on the budget. In others word, even though it was a reality that things were happening, it wasn't going to be translated into governmental action. This seems to me like a retreat from reality, if this is what they actually thought.

And then something like only 25% had done any planning as to what they would do if there should be a cut in defense spending. This seems to me to be one further retreat from reality.

As long as you have these retreats from reality, then these other things that we said were important just aren't going to get done. So this puts it pretty squarely up to businessmen.

Now, another question. What can we do to encourage greater economic growth within the country, with Russia going up 6% and we going up 3% or 4%.

MR. VERNON: It's essentially the question: How can we project the picture of an economy using all of its resources fully and growing in a way which, in effect, creates no inequities? Part of the answer is that there are a variety of expenditures all the way from education to urban development which could use up a certain slack in our resources and which could project a general picture of the United States as an economy concerned for the wants of its people.

MR. LIVINGSTON: I think one other aspect of the speeding up or the increasing of our growth is in the way we use our funds for research purposes. Take, for example, what normally could grow out of our defense program. If you don't want to call it a defense program, call it a space program or something else. You can, through research expenditures, provide the impulse which will cause a very substantial growth in the economy.

To give you just one little example, one of the things that is coming out of the space program is the development of solar batteries and solar cells, which are able to power the satellite batteries. This is also something that could change very significantly the generation of power in the country.

MR. BURSK: Again, what we need is a re-

direction of effort over which businessmen have a whale of a lot of influence or should have.

MR. CHERINGTON: Initial expenditures in these fields—space programs or what-have-you—have to be started, I think primarily, by the government.

What About Strategy Changes?

MR. LIVINGSTON: Another point which should be brought out is that we, in our conversation tonight, are tending to respond to strategy or tactics which the Soviet has been following for a period of 10 years. If there is a substantial change in their tactics, if they are going to lead us through a period of rapprochement, then our conversation isn't really attuned, except for the last few minutes, to what we should do during this period of rapprochement—particularly on what we should do about our defense program. We should be considering how we can more wisely use the money we have available or the effort that we direct into this program. I think, in the long-run competition between our economy and the Soviet economy, that one of the critical factors—and perhaps the decisive factor—will be the relative management capabilities of our system versus the Soviet system to use the resources we have skillfully or for scientific resources or for material resources. I think the Russians understand this. Sometimes I think we forget it.

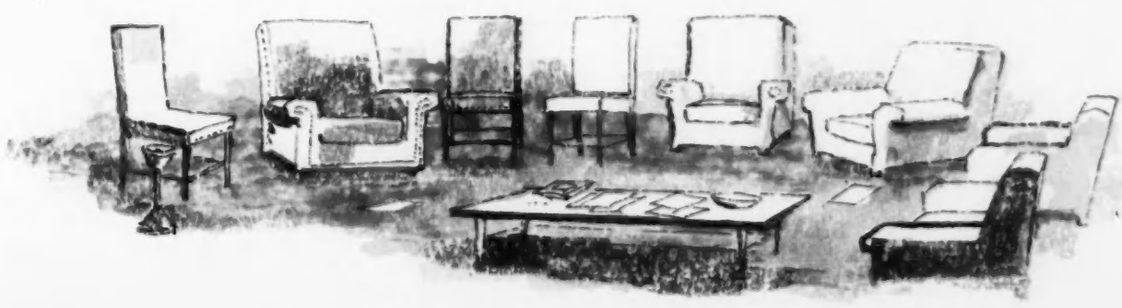
Now this has been a very difficult thing for us over the period of the last 10 years. We have had extreme difficulty integrating the very complex weapon systems to make them come out effectively and speedily. But I think that at this point we probably have a pretty good idea as to how these developments are managed and produced, and I think this is one of the big gains in our society during the last five years, let's say, and that is: a better understanding of what is involved in systems management. The ability to take these tremendously complex weapons or complex systems and integrate them into a balanced, effective weapon or system is something we have learned how to do that we didn't know before. I think we will see this speed up our defense program.

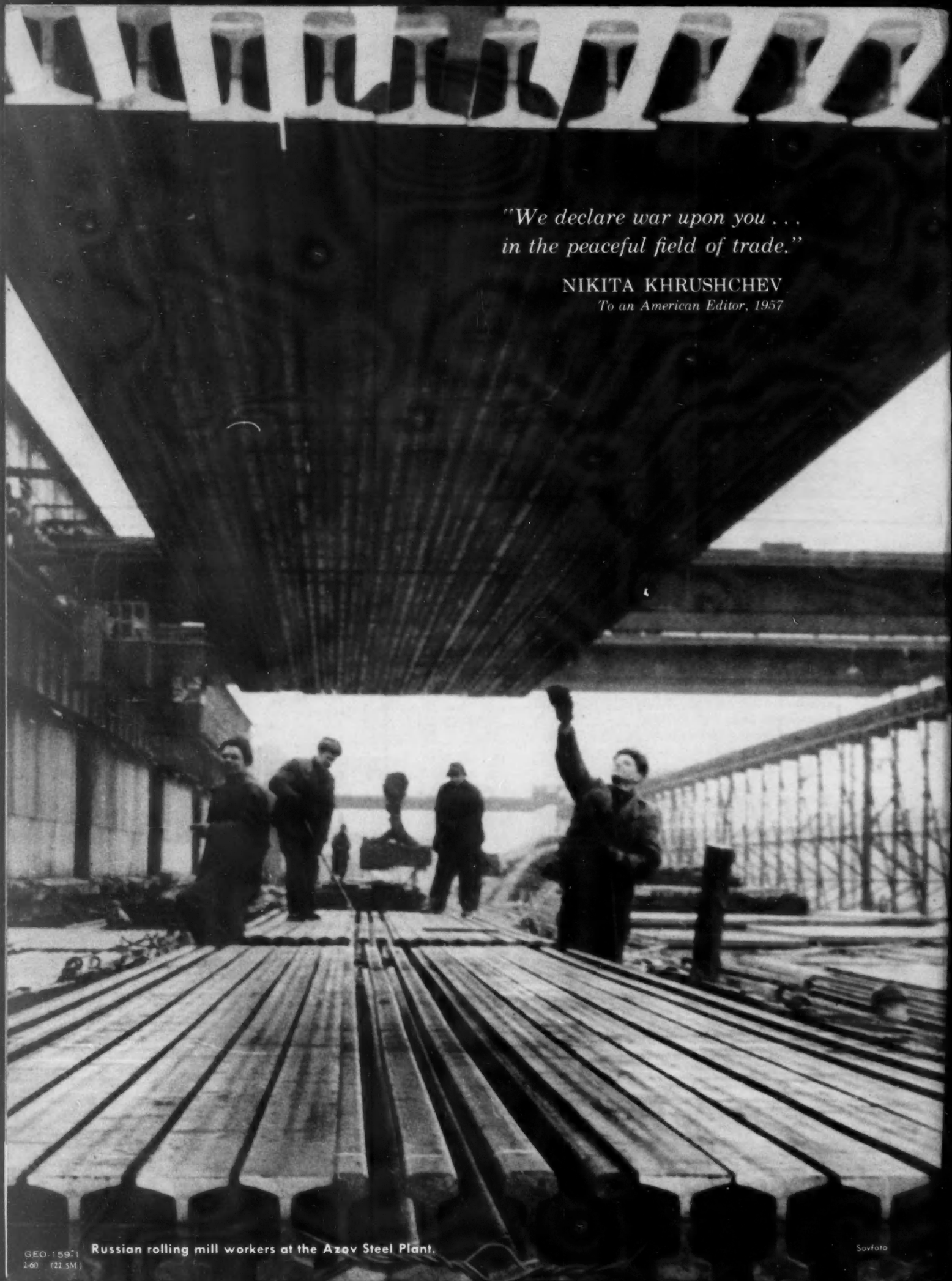
I think the essential difference between our system and the Soviet system is that, under a private-enterprise system, we have thousands of centers of initiative and thousands of centers of responsibility, whereas in the Soviet system you have to have many fewer centers of responsibility. It's a much more centralized system. Now, we have failed in our military program to use those centers of initiative, but we're beginning to use them.

Our system has a capability we are beginning to take advantage of, which will, I think, over a long-run period of time, enable us to outdistance the Soviets. Before the missile era, our defense contractors, as an example, were waiting for specifications and guidance from the military services as to what kind of weapons should be produced. They were committed to essentially an obsolete product which they were trying to sell without recognizing the need for a startlingly new product.

Then, as we moved forward and as we accepted the idea that we must have advanced weapons, the only way for these individual manufacturers to compete was to conceive of technological advances which could be adapted to weaponry before the military services and before their competitors could conceive of those developments. Hence, to an increasing extent, the private-enterprise organizations are suggesting to the military services the kinds of things that can be done, without waiting to be told what should be done. I think it's in these centers of initiative that the new ideas will be produced, at a terrific rate. And they will not be held back, because the State doesn't have the concept that this is the way it should be done.

So I think we do have here, fundamentally, a great deal of strength which we are beginning to utilize, which private incentives and profit incentives stimulate. Our competitive system can function more effectively than a noncompetitive system. I think that in this strength of the system—that is, the centers of individual initiative and the great sophistication of our management in industry—we have two things that have been overlooked in our ability to deal with the Soviets both in weapons and nonweapons.





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Russian rolling mill workers at the Azov Steel Plant.

Sovfoto